ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF COMMERCIAL FISHERIES

ANNUAL MANAGEMENT REPORT

1975

KUSKOKWIM DISTRICT

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PREFACE

This report presents all available information concerning the management of commercial and subsistence fisheries in the Kuskokwim district. Although data from many special research projects are included in this report, complete documentation of these projects and results will be presented in separate reports. All catch data tables are based upon field data.

Data presented in this report supercedes information found in previous management reports. An attempt has been made to correct errors in previous reports and previously unrecorded data have been incorporated into this report which are so indicated by appropriate footnotes.

This report is organized into the following major sections:

1. District Introduction. This is a general and brief description of the area, inhabitants, fishery resources, fisheries and management practices.
2. District Summary. This section summarizes current year data for the area and makes comparisons with previous years.
3. District Reports. There are several unique and separate fishing districts in the area and separate comprehensive reports are presented for each.

In order to facilitate use of this report, the tabular data has been separated into current year tables and appendix tables where annual comparisons are made. The text for each major section is followed by current year tables and then appendix tables.

The following is an explanation of how effort and catch per unit effort data, presented throughout this report, have been derived. Boat (or fisherman) hours is computed by arbitrarily assuming that if a fishing boat

delivers in any 24 hour fishing period, it fished the entire period. If the period was more than 24 hours long, then the vessel is assumed to have fished the complete period for as many hours as was open to commercial fishing.

Catch per fisherman (or boat) hour is obtained by dividing the total fisherman hours into the catch for the corresponding period of time.

Total fishermen (or boats) is the total number of fishermen making deliveries, irrespectively of how many deliveries made or days fished during a particular "season". There are a number of fishermen who deliver only once or twice during the entire season.

"Total days fished" is the total number of hours open for commercial fishing during the season divided by 24.

Information presented is derived from field data and not from finalized computer tabulations.

KUSKOKWIM DISTRICT

INTRODUCTION

District and Subdistrict Boundaries

The Kuskokwim district includes all waters of the Kuskokwim River drainage and all water of Alaska between Cape Newenham and Cape Romanzof. The present commercial salmon fishing area is divided into four subdistricts: subdistrict 1 (lower Kuskokwim River from Eek Island to Mishevik Slough below Tuluksak); subdistrict 2 (middle Kuskokwim River from Mishevik Slough to the Kolmakoff River near Aniak); subdistrict 4 (approximately five miles of shoreline adjacent to the village of Quinhagak); and subdistrict 5 (Goodnews Bay). Subdistrict 3 (upper Kuskokwim River above the Kolmakoff River) has been closed to commercial fishing since 1966 (Figure 1). Table 1 shows the relative distance, in river miles, from three sites on the Kuskokwim River to various locations in the district.

Fishery Resources

All five species of Pacific salmon are indigenous to the district: i.e. chinook or "king" salmon (Oncorhynchus tshawytscha), sockeye or "red" salmon (O. nerka), coho or "silver" salmon (O. kisutsch), pink salmon or "humpback" (O. gorbuscha) and chum or "dog" salmon (O. keta). The largest population of kings, chums and cohos are found in the Kuskokwim River drainage, while reds and pinks are more numerous in the Kanektok and Goodnews Rivers.

Other important species common to the district include: inconnu or "sheefish" (Stenodus leucichthys) several species of whitefish and cisco (Coregonus sp.), Alaska blackfish (Dallia pectoralis), northern pike (Esox

lucius) and burbot or "lush" (Lota lota). Additional species are listed in Table 2.

Commercial Fishery

Although the Kuskokwim district commercial fishery is the oldest in the AYK region with catches reported as early as 1913, commercial fishing did not mature for a half-century. For many years, small commercial mild-cure operations were conducted in the Kuskokwim Bay and the mouth of the Kuskokwim, while the Kuskokwim River itself remained virually untouched. During the 1930's when dog teams were intensely utilized for freight hauling, a "quasi-commercial" fishery operated in the McGrath area for the sale of dried, subsistence caught salmon for dog food. However, this fishery declined with the dog teams and the Kuskokwim district experienced little additional commercial effort until Alaska became a state more than twenty years later.

Commercial salmon fishing activity has grown significantly since statehood as district fishermen have been making the difficult transition from a subsistence culture to a cash economy. This has affected fishing effort, resulting in a tremendous expansion in fishermen numbers and in increased, sustained effort. Fishing vessels have remained virtually unchanged over the years, but increased utilization of highly mobile nylon drift nets has greatly improved the efficiency of the fleet. Of course, the overall expansion of the commercial fishery could not have been accomplished without improvements in processing and tendering facilities that have occurred throughout the district (Appendix Table 1).

King, red, coho, pink and chum salmon are of primary commercial significance in the Kuskokwim district. Although these fish are commercially utilized locally to some extent, the vast majority are transported from the

district as a fresh or frozen product. Sheefish and whitefish are harvested incidentally to the salmon catch, however, a limited fall and winter "whitefish fishery" is conducted to satisfy local market requirements.

Subsistence Fishery

District residents have long depended upon the fishery resources as a source of food. Until relatively recently, traditional fishing methods and materials limited the size and scope of the fishery. Spears, dip nets, fish traps, and willow or caribou strip gill nets were slowly supplanted by more efficient linen gill nets enabling the fishery to expand tremendously. Whitefish, cisco, black fish, pike, burbot, and sheefish have been historically utilized along with salmon, particularly chum salmon. Recent improvements in fishing gear, notably the introduction of nylon gill net webbing, have increased the availability and importance of king salmon since statehood. Estimated peak subsistence salmon harvest levels were reached during the 1930's coincidentally with the quasi-commercial McGrath fishery, but harvest trends indicated a continuing decline into the 1940's. Little additional catch data is available for the twenty year span prior to statehood (Appendix Table 1).

Today the dependence on fish for personal use remains as important as money realized from the commercial fishery. However, several factors, as yet not totally defined, are affecting the complexion of the subsistence fishery. These factors include:

1) Increasing commercialization of subsistence products.

2) Cultural changes of local residents.

3) Various State and Federal social-aid programs.

Any management of the Kuskokwim district fishery resources must take into account the growing - and changing - requirements of the subsistence fishery.

Salmon Roe:

The Governor approved legislation on May 29,1975 allowing the sale of subsistence caught salmon roe within the AYK region. In order to administer the legislation, the Commissioner of Fish and Game issued an emergency regulation in June, 1975 which controlled the purchase and sale of subsistence roe in portions of the region. The key elements of the emergency regulation were:

1) Permits are required of all persons or companies purchasing or processing subsistence-caught roe.
2) Revocation of permits upon violation of permit terms, regulations or laws.
3) Strict reporting requirements in regard to amount of subsistence-caught roe in order that estimates of subsistence harvests can be made.
4) Prohibition of subsistence-caught roe sales when subsistence harvests are likely to exceed traditional personal use needs.
5) Prohibition of subsistence-caught roe sales in districts and subdistricts where salmon runs are especially vulnerable to overharvest or where subsistence catches in the past have been negligible.

Numbers of salmon were "back calculated" from reported subsistence roe poundages by utilizing in-season sampling of the various runs. Therefore, estimates of the subsistence harvest were possible and were available for

in-season management purposes. Attachment 1 presents a brief report of subsistence salmon roe sales.

Management

The Division of Commercial Fisheries of the Alaska Department of Fish and Game is responsible for the management of the commercial and subsistence fisheries within the Kuskokwim district. The permanent staff assigned to this district includes one management biologist and two research biologists. In addition, 10-15 temporary summer employees are hired each season to assist the permanent staff in conducting various management and research studies.

The main objective of the Department's program is to manage the commercial salmon fisheries on a sustained yield basis in addition to obtaining needed information to determine the potential for commercial fisheries on under utilized species such as herring, char and whitefish. Present commercial salmon fishing regulations are still relatively restrictive in order to insure that sufficient salmon are provided for subsistence fishery and spawning ground requirements.

The basic regulation that governs the commercial salmon harvest in all districts is the scheduled weekly fishing period. Commercial fishing is normally allowed from 6 hours to four days a week during the open season, depending upon the district and species involved. Fishing effort usually occurs during the entire run and not just during any particular segment of the run. Occasionally more, or less, fishing time is allowed, depending upon fishing conditions, the strength of the runs or spawning escapements as determined by special studies conducted by the Department.

Due to the vast size of the area and the turbid nature of many streams, accurate estimates of the size of salmon runs and the spawning escapements

are difficult to obtain. Fishery management is also hampered by the relative lack of comparative catch and return information since all the fisheries were either initiated or expanded through regulation changes since 1961 or 1962. The management problem is further compounded by having to provide sufficient escapement after commercial fishing for the important subsistence fishery, as well as for spawning purposes.

For these reasons the present commercial fishery is still considered to be somewhat experimental in nature. It has been a policy of the Alaska Department of Fish and Game to maintain recent levels of commercial utilization for a few years in order to establish definite trends in subsistence utilization and to obtain more information on the relationship between the salmon catch and return.

If there is no apparent change in run size, it is the Department's policy to increase commercial utilization once trends in declining subsistence utilization can be established. It should be pointed out that increases in commercial fishing effort and efficiency have occurred and may balance any immediate decline in subsistence utilization with the result that present regulations will be maintained or even made more restrictive.

During 1975, Department biologists compiled the first written Kuskokwim district "management plan". Although the plan was intended only to be a feasibility study and was utilized "in-house", the exercise was successful and will be continued and expanded in 1976.

A brief list of emergency orders and regulations promulgated during 1975 is presented in Table 3.

Regulatory changes enacted by the Alaska Board of Fisheries at their

December meeting in Juneau are shown in Table 4.

Table 5 lists special studies undertaken during 1975 and include a summary of objectives and results.

A unique problem in the area is the so-called language barrier. Many of the older native people cannot read or speak English. Therefore, the staff must use translators when conducting the many public meetings that are annually conducted throughout the area. In addition, many special regulation notices are distributed in both the English and Eskimo languages. While it may normally take only half an hour or so to conduct a public meeting or hearing in English, it usually takes two to three times that long when Eskimo translators are used. To assist in the information and education program, a weekly fishery program is broadcasted over radio KYUK in Bethel. Additionally, the Department contributes to the bi-weekly newspaper, Tundra Drums.

DISTRICT SUMMARY OF THE 1975 COMMERCIAL FISHERIES

Licensing

Recent license registration levels have increased tremendously, although 1975 totals were slightly below record 1974 levels. For example, commercial registration decreased 3.4% to 1,099, but remained 46.5% above the recent five-year average of 750 licenses. Similarly, vessel licenses totaled 804 (11.2% decrease) or 33.5% above the 1970-1974 average of 602 licenses. Drift gill net registration dropped to 784 (8.1% decrease), but represented an increase of 37.5% above the recent average of 571. Set gill net registration remained low and totaled only

48 licenses, or 15.7% below the recent five-year average of 57 licenses. Overall, the 1975 registration of 2,735 licenses decreased 7.8% below record 1974 levels, but remain 37.9% above recent year average levels (Appendix Table 2).

The Kuskokwim district remains a resident fishery, as 99.8% of all 1975 gear licensees were residents of the district (Table 6). These fishermen move freely between subdistricts so registration data does not correspond with the total number of fishermen who fished each subdistrict. The total number of fishermen making deliveries at least once in each subdistrict was: 335-10, 737; 335-20, 38; 335-40, 127; and 335-50, 50.

Gear license holders are issued permanent registration numbers which do not change during the life of the individual fishermen. Whenever actual numbers of fishermen are given in this report, they refer to data obtained from permanent registration numbers.

Commercial Catches

The 1975 commercial salmon catch of 384,196 was 22.4% below the record 1974 harvest, but exceeded the previous five-year average of 292,392 fish (Appendix Table 3). Species composition was: 28,278 kings, 18,036 reds, 111,763 cohos, 963 pinks and 225,156 chum salmon (Table 7). Price disputes, lack of buyers and reduced harvest goals helped keep the king salmon catch at the lowest level since 1965 (Appendix Tables 3 & 4). The chum salmon catch was the largest on record, while the red salmon harvest was second only to the 1974 catch. The coho salmon harvest was the fourth largest ever recorded and the small pink salmon catch was typically low for this "even year cycle" fish. Commercial catches were strongly influenced by intense, consistently high fishing effort and increased fleet efficiency.

Average 1975 salmon weights are presented in Table 8.

Buyers and Processors

Table 9 includes all buyers and processors that operated during 1975 in the district. Appendix Table 5 compares the 1975 pack to previous years and Appendix Table 6 presents the mean salmon weights and the prices paid to fishermen for the last decade.

Economic Value

Commercial fishermen received approximately $899,178 for their catch in 1975 (Appendix Table 7) while a minimum of $165,000 in wages was estimated to have been earned by processing plant employees and tenderboat operators. Prices paid for salmon roe were similar to 1974 levels, except that king salmon values increased.

Sales of other fish, primarily whitefish, were valued at $4,214.75 (Table 10).

Enforcement

The most common violation during the past few seasons has been subsistence fishing during closed periods. In the past, the Department vigorously pursued a program of informing the public of impending closures by utilizing the local radio station, C.B. radio, telephone and by personal contact. Additionally, in 1975 a two-man crew spent six weeks in the Akiak-Akiachak-Kwethluk area collecting subsistence information and explaining pertinent regulations to fishermen. Violations decreased markedly in this area. Several fishermen were fined for fishing during closures including:

1) Jack Kernak, Napakiak, fined $200 with $150 suspended.

2) Peter Willie, Napakiak, fined $100 with $75 suspended.

3) Phillip Guy, Kwethluk, fined $200.

4) John Moses, Kwethluk, fined $200. Protection officers stated many fish were rotten in Moses' net.

Increasing numbers of fishermen were observed operating in areas closed to commercial fishing. The boundary at Napakiak in subdistrict 1 was often ignored during the chum salmon fishery, while fishermen were observed more than three miles out of the open commercial area in subdistrict 4 (Quinhagak). Reports persist of illegal fishing in the Goodnews River of subdistrict 5. Continued fishing in closed areas could endanger various salmon runs and result in increased restrictions upon the commercial and subsistence fisheries.

The sale of subsistence-caught salmon roe was legalized by the Legislation in 1975 and an emergency regulation was promulgated to provide specific regulatory control of the sales. Violation warnings were issued to Kemp-Paulucci Seafoods, Inc., Elm Corporation and Larry Patson Seafoods, Inc. for various infractions: e.g. failure to submit weekly roe reports; roe buyers not maintaining their roe permit in their immediate possession, and incorrect completion of roe tickets. The regulatory requirements were adequately satisfied by the buyer/processors after issuance of the warnings.

A continuing problem concerns completion of fish tickets. Fish buyers/processors were supplied with simplified instructions regarding fish ticket procedures, but several processors consistently submitted incorrect tickets. Larry Patson Seafoods, Inc., Elm Corporation, Kachemak Seafoods, Inc. and Togiak Seafoods, Inc. were issued violation warnings.

In the past, Public Safety enforcement activities have been

characterized by insufficient personnel and equipment to adequately perform their mission. This situation still exists, however, the caliber and attitude of Kuskokwim Protection Officers has improved tremendously. Officer Larry Henslee of McGrath was a great asset during the 1975 season and the aquisition of a resident Bethel officer, John Kinsey, should aid 1976 enforcement activities.

KUSKOKWIM RIVER (SUBDISTRICTS 1 & 2)

Commercial Fishery

The greatest amount of fishing effort and the largest commercial salmon catches occur within the 108-mile long Kuskokwim River subdistrict 1, (stat. area 335-10). There are 12 villages and at least 15 temporary fish camps located within the boundaries of this subdistrict. A majority of the district residents utilize the fishery resources for both commercial and subsistence purposes.

Set gill nets, drift gill nets and fishwheels are the legal types of commercial gear that can be operated in the Kuskokwim River, although the latter type of gear has not been used for the past several years. The gill nets cannot exceed 50 fathoms in length. After June 25, a six-inch maximum mesh size restriction is in effect in the commercial chum salmon fishery located below the village of Napakiak.

Lower Kuskokwim River commercial fishermen operate highly mobile drift gill nets. This type of fishing is conducted by laying out 35 to 50 fathoms of gill net from a skiff and then drifting with the river current. Drift net fishing requires a section of river that is relatively free of snags. Set gill nets are not utilized to a great extent by commercial fishermen

and are used mainly for subsistence fishing. Commercial set gill nets are fished in small eddies along the banks of the Kuskokwim River and larger eddies out in the main river. Set gillnetting is done with much shorter nets, usually 5 to 15 fathoms in length, which tend to be more poorly constructed than do the drift gill nets.

Although there are no mesh restrictions regarding nets operated in the lower subdistrict through June 25, most nets used during this time consist of 8½ inch stretched mesh webbing. After June 25, a six-inch stretched mesh size limitation is in effect and most nets consist of 5¼ - 5½ inch stretched mesh. Depths of king salmon nets range mainly from 28-40 meshes deep, although additional deeper nets (45-60 mesh) are entering the fishery. Nets used to capture the smaller species range from 30-60 meshes deep, but relatively few are utilized.

Kuskokwim River skiffs are long and narrow with a high bow. Generally, boats vary from 16 to 32 feet (23-foot average) in length and 2½ - 3 feet in deck width, although wider, more stable vessels are now entering the fishery. Boats are generally poor for fishing as they are unstable, too narrow for a stern roller, and the sides and stern are generally too low to carry too much of a load.

Several important regulations affecting commercial fishing efforts on the Kuskokwim River are:

1) Commercial fishing periods are limited to two 12-hour periods each week during the king and chum salmon seasons. This helps offset the increased effort and efficiency of the fleet and distributes the allowable harvests over a greater portion of the salmon runs.

2) Commercial fishing is allowed only below Napakiak (the lower 72 miles of river) during the "chum salmon season" (June 25 - July 31). Only gill nets of six-inch stretch mesh or less can be operated during this time. Restricting fishing to the lower portion of the subdistrict enhances fish quality, helps prevent excessive harvest and wastage, and allows subsistence demands to be met. The gill net mesh restriction minimizes the capture of king salmon, particularly the larger more fecund females.

3) Subsistence fishing is prohibited for 24 hours before each commercial fishing period in subdistrict 1 and subdistrict 2 prior to June 25. During the "chum salmon season" (June 25 - July 31), only the lower subdistrict below Napakiak is affected. This regulation reduces the sale of illegal salmon and provides for a more even escapement distribution. It also reduces fish wastage, as subsistence fishermen are required to check their gear at regular intervals throughout the commercial fishing season.

4) After July 31, commercial fishing periods are regulated by emergency order. This allows fishing effort to be regulated according to the magnitude of the variable coho salmon run. It

also allows fishing time to be altered to insure maximum fishermen's safety during poor weather conditions in August.

A limited commercial salmon fishery is also conducted in the 118 mile long middle subdistrict 2. Commercial fishermen in this subdistrict are limited to catch quotas of 2,000 king and a combined total of 2,000 red, chum and coho salmon. The majority of the commercial catches are taken in the Tuluksak-Kalskag areas, while the remainder of the subdistrict is primarily devoted to subsistence fishing. Set gill nets and fishwheels are all found in this subdistrict, however, set gill netting predominates.

King Salmon: Only since statehood have king salmon stocks been used significantly by Kuskokwim River fishermen. King salmon commercial and subsistence harvests averaged only 50,054 fish for the 10-year period 1960-1969, but increased to 77,848 during 1970-1974. Although effort remained high during the 1975 season, total utilization was 69,704 fish (Appendix Table 8).

Annual commercial catches ranged between 30,000 to 40,000 king salmon from 1968-1972. A harvest goal was instituted within this range in an attempt to stabilize the fishery until additional data regarding run size and escapement was obtained. The small runs experienced during the past few seasons indicated the harvest goal was too optimistic, resulting in a reduced harvest goal (15,000 - 20,000 fish) during the 1975 season.

The "king salmon season" in the lower subdistrict is not opened until

subsistence catches indicate the early portion of the king salmon run has reached the Kalskag- Aniak area and relatively good sustained catches are being made at the Department's test fishing site at Kewgooyuk (56 river miles below Bethel). The late opening of the king salmon season helps to prevent over-harvest of the early run and gives subsistence fishermen an opportunity to begin fishing without interruption from the commercial fishery.

In 1975, the ice on the Kuskokwim River first moved on May 19, and the river was completely free of ice by May 25. The first reported king salmon caught was on May 26.

The commercial king salmon season opened on June 16 with a 6-hour "test period" followed by two 12-hour periods. Price disputes between buyers/processors and fishermen resulted in minimized effort and catches during the first two periods, however, a record-setting twelve hour catch of 17,235 kings brought the total harvest to 18,625 king salmon (Tables 11a,11b and 11c). The catch was 65.9% of the total Kuskokwim district harvest and was 40.6% below the recent 5-year average. Commercial and subsistence catch data indicates that the large catch was due primarily to an intense commercial effort and not to increased numbers of kings. The commercial king salmon season was closed on June 24, as the harvest goal had been attained.

Commercial fishing effort totaled 541 fishermen, a 10.7% decrease from record 1974 levels. Fishermen hours decreased to 5,796, the lowest on record, while the number of equivalent days fished decreased to 1.25 (Appendix Table 9). In addition, catch per vessel hour figures of 2.9 were the highest ever documented.

Data from the Department's Kwegooyuk test fishing site indicated the king salmon run peaked about June 20. The catch was of average magnitude, however, 69.9 percent of the catch was composed of male kings. Age analysis indicated 57.2 percent of the kings were age 4_2 or 5_2 fish (Table 12).

Commercial catch samples taken at Bethel indicated 71.9 percent of the kings were males, while 83.2 percent were age 4_2 or 5_2 fish.

Visual size estimates at the Department's Kogrukluk River counting tower site also indicated a high percentage of the kings passing the tower were age 4_2 and age 5_2 fish.

The commercial king salmon season was opened in subdistrict 2 on June 23 for a 96-hour period. The season was closed when the "small salmon" (i.e. chums, reds, cohos) quota of 2,000 fish was surpassed by a catch of 2,385 chums and 1,319 kings (Table 13). This marked only the second instance recorded of the combined chum, red and coho salmon quota being reached prior to the king salmon quota.

Commercial fishing effort totaled 38 fishermen, an increase of one fisherman (2.7 percent) above 1974 levels. Fishermen hours decreased to 3,648, while the number of equivalent days fished decreased to 4.

Chum Salmon: Prior to 1971, chum salmon catches represented only fish taken incidentally to the king and coho salmon fisheries. A commercial chum fishery was initiated in 1971 due to several factors:

1) Early subsistence catch estimations during 1924-1943 indicate an average annual catch of 448,000 chum salmon, compared to an average 221,000 chum salmon taken yearly

during 1960-1970. This represents a reduction of 227,000 fish per year. This subsistence harvest reduction is believed to have been largely influenced by lessening dependence on subsistence fishing.

2) There is a minimum of 16 known chum salmon spawning tributaries in the Kuskokwim River system. Most of these streams cannot be surveyed annually due to fund limitations and adverse stream or weather conditions. Usually, not more than three tributary streams can be adequately surveyed in any given season, but as many as 185,000 spawning chums have been counted. This indicated a significant chum salmon population.

3) Commercial catches were believed to be able to provide additional information regarding the size, timing and magnitude of the chum salmon run in addition to age, sex and size composition.

Total utilization figures have increased steadily since the inception of the commercial chum salmon fishery with a total of 360,560 fish being caught in 1975. Although this figure is 19.7 percent below the high 1974 harvest, it is 28.7 percent above the recent five-year average (Appendix Table 10).

The "chum salmon" season is opened after June 25 below markers placed at the village of Napakiak. Commercial fishermen must use nets of less than 6-inch stretched mesh. The delayed opening dates combined with the mesh restriction minimizes incidental harvests of king salmon, while

restricting commercial fishing to the lower portion of subdistrict 1 allows subsistence fishermen to meet their requirements.

The commercial chum salmon season was opened June 30 for a six-hour test period. Due to continued record effort and catches, each successive commercial period was of six-hour duration for the remainder of the season. A record catch of 167,139 chums were taken in five commercial periods. The catch was 74.2 percent of the total Kuskokwim district harvest and was 77.9 percent above the recent five-year average.

Commercial fishing effort totaled a record 539 fishermen, a 15.4 percent increase above previous record 1974 levels. Fishermen hours decreased to 9,828, while the number of equivalent days fished decreased to 1.5 (Appendix Table 11).

The date from the Department's Kwegooyuk test fishing site indicated the run peaked about July 3. Chum salmon age data indicated 82.4 percent of the run was composed of age 3_1 or age 4_1 fish.

Commercial catch samples taken at Bethel showed similar age data at 87.2 percent of the catch were age 3_1 or age 4_1 fish.

Coho Salmon:

The commercial coho salmon season opened on August 1 with a six-hour test period. Coho salmon catches were light and, in addition, a good portion of the harvest was composed of a fall run of chum salmon. These chums generally are not present in commercially harvestable numbers, but made a good showing in 1975. Fish buyers marked all fish caught as "cohos". A total of 84,120 "cohos" were taken before the season closed on August 27.

The catch was 75.3 percent of the total Kuskokwim district harvest and was 23.4 percent above the recent five-year average.

Commercial fishing effort totaled a record 531 fishermen, a 2.9 percent increase above previous record 1974 levels. Fishermen hours decreased to 64,356 (Appendix Table 12).

Subsistence Fishery

Methods: The annual survey of the Kuskokwim River subsistence fishery was initiated in 1960. During the early years, the Department utilized "smokehouse counts" to determine total utilization of subsistence-caught fish. In an effort to determine additional timing and magnitude data, the Department began using "subsistence catch calendars" which are distributed to fishermen prior to the fishing season. Subsistence fishermen enter their daily catches of salmon and non-salmon species on the calendar. During July and August a Department crew utilizes a cabin skiff to travel more than 360 river miles (Eek to Swift River) to collect catch data from the individual fishermen in addition to recording certain information from non-fishing families. After the river survey is completed, catch questionaries are sent to those fishermen not individually contacted.

In the 1969 Annual Report, a review is presented regarding methods used to obtain subsistence harvest and related information. All subsistence information presented in tabular form in this report, except Appendix Table 18, represents "expanded data." This includes those families known to have fished but for one reason or another were not personally contacted by the survey crew. Catch data for these families are assumed to be the same as the averages for the particular village and are included in most of the tables.

Reported coho salmon catches are very minimal as the coho salmon run occurs after the survey is completed. Most of the coho salmon catch data

is obtained from the return of catch calendars. Prior to 1969, little effort was made to determine the coho salmon harvest. The coho salmon estimates are not included in the comparative catch tables.

Catch and Effort: The Kuskokwim River system's harvest included 47,569 king salmon and 176,389 chum salmon utilized by 589 fishing families during 1975 (Table 14). The king salmon catch was the largest since 1970 and was 20.8 percent above the recent ten-year average (Appendix Table 13). The increased catch was a result of increased fishing effort after an early season fishing "boycott" and the loss of a portion of the subsistence harvest to poor drying conditions and techniques. The chum salmon harvest was 36.4 percent below the high 1974 catch, but only 15.8 percent below the recent ten-year average (Appendix Table 14).

In order to evaluate the effect of snowmachines on the subsistence harvest, all fishing families interviewed since 1967 have been checked for the number of snowmachines they owned. The percentage of families owning snowmachines has increased 44.8 percent since 1970 (Appendix Table 15). Average numbers of snowmachines per fishing family during 1967-1975 are shown in Appendix Table 16.

The public relations aspect of the annual subsistence fishery survey is important to the success of the survey itself and the Department's management program. By any method tested, the results of the voluntary contribution of the people of this program are as accurate as the people are capable of giving. The major problem is that many of the fishermen are illiterate and speak only Eskimo and have to relay much of the catch information through their school-age children.

There is still a moderate sale or trading of dried salmon on the

Kuskokwim River, but is not documented. People from the coastal delta villages still bring their pokes of seal oil to trade for dried fish. The lower river dried fish are now primarily being used for human consumption.

The use of the fishwheel to capture salmon is slowly disappearing from the Kuskokwim River. Only 11 fishwheels were used along the survey route in 1975, compared to 30 in 1965 and 65 in 1960. The fishwheel is being replaced by the much more mobile gill net, which involves a lot less time and effort to operate. The use of gill nets is a relatively new technique for most Kuskokwim River residents. The efficiency of the two types of gear is difficult to evaluate, as large catches are often made with both.

Escapement

Kuskokwim River drainage escapement estimates from aerial surveys have proved difficult and costly to obtain. Varying stream and weather conditions, in addition to pilot and observer skills, often make the data difficult to interpret (Appendix Table 17). Although aerial surveys will be continued for some streams, emphasis will be placed on obtaining accurate escapement figures by use of counting towers or weirs on several "key" spawning tributaries.

All the Kuskokwim River aerial survey results for 1975 are presented in Table 15. Escapements of kings were generally below average, while numbers of chums and reds were good.

A counting tower has been operated yearly on the Kogrukluk River (Holitna River system) since 1969 (except 1971). The Kogrukluk River crew counted 1,970 kings, 8,290 chums, 2,305 reds and 3 pinks. The number of kings passing the tower was similar to the low 1972 and 1973 counts, while visual size estimates indicated a majority of age 5_2 passing the tower.

The chum salmon count was the second highest on record, and the red salmon count was the highest recorded at the Kogrukluk tower.

QUINHAGAK (SUBDISTRICT 4)

Commercial Fishery

The Quinhagak fishery is one of two located south of the Kuskokwim River mouth (Figure 1). This fishery has traditionally been very sporadic due to unstable processing facilities, however, the commercial fishery has stabilized during the past few seasons.

Fishing regulations for this subdistrict are very similar to those found on the Kuskokwim River, except that there are distinct fishing seasons and there is a 6-inch stretch (maximum) restriction placed on fishermen. Begining with the 1971 season, the basic fishing period was reduced from two 24-hour periods to two 12-hour periods per week. Commercial fishing is allowed only in Kuskokwim Bay waters. This is necessary to ensure escapement of adequate numbers of salmon up the narrow Kanektok River. The vast majority of gear operated consists of drift gill nets that are fished at low tide in "gutters" located two to three miles off shore and next to shore at high tide. Most of the fishing takes place near the mouth of the Kanektok River.

The Kanektok River king salmon run is later than that of the Kuskokwim River and for this reason the Quinhagak fishery opening is delayed until mid-June. The delayed opening prevents possible interception of Kuskokwim River fish and aids in preventing overharvest of the king salmon run.

Fishermen were required to use small mesh gear (6-inch stretched mesh or smaller) during the entire commercial fishing season. This was

necessary primarily to prevent selective harvesting of the larger, more productive king salmon by the large mesh nets. However, the mesh limitation was also designed to increase harvests of the more abundant "other salmon" species (i.e. red, pink. chum, coho).

The commercial salmon season was opened June 23. Due to a fishermen's strike, there was an absence of fish buyers and no catches were reported until July 3. A total of 3,994 kings, 8,969 reds, 10,096 cohos, 540 pinks and 34,402 chums, totaling 58,001 fish were taken (Table 16). The king salmon catch was 54.1 percent below the 1974 harvest and 68.0 percent below the recent five-year average, while the red salmon harvest was 54.0 percent below 1974 levels but 31.5 percent above the recent year average. Catches of coho salmon were almost identical to 1974 and were similar to the five-year average (5.8 percent above), while chum salmon catches were 55.5 percent above 1974 harvests and 33.3 percent above the average. The commercial season effectively ended on August 26 when buyers left the subdistrict.

Commercial fishing effort totaled 127 fishermen, a 35.2 percent decrease from record 1974 levels but still above average.

Two 12-hour commercial fishing periods were allowed each week until July 14, when an additional 12-hour period was added to the schedule. Fishing periods were altered on August 1 from a 6 p.m. - 6 a.m. schedule to one encompassing the hours from 6 a.m. - 6 p.m. This was done to augment fisherman safety during poor weather conditions in August.

Subsistence Fishery

Accurate comparable subsistence data has been lacking in the Quinhagak subsistence fishery during recent years. However, observation by the staff

indicates that dependence on subsistence fishing has not been high. Apparently the greatest amount of fishing effort occurs in the Kanektok River after the commercial fishing season when mostly coho salmon are taken.

Methods used to tabulate catches made by Quinhagak fishermen were similar to those used for the Kuskokwim River survey. A total of 46 Quinhagak fishing families returning catch calendars reported catching 3,261 kings and 4,040 "other salmon."

Appendix Table 18 shows comparative catch data for 1967-1975.

Escapement

Escapement counts made during various aerial surveys of the Kanektok River system are shown in Table 14. Poor weather conditions frequently hampered aerial surveys in the Quinhagak subdistrict.

Based on comparative catch data, escapement of all species was probably average.

GOODNEWS BAY (SUBDISTRICT 5)

Commercial Fishery

Traditionally, the male residents from the villages of Goodnews Bay and Platinum have gone to Bristol Bay each summer to fish or work in the canneries, leaving the women and children home to fish for subsistence purposes. Prior to 1968, there are no records indicating that commercial salmon harvests were ever made in Goodnews Bay. The Department held public meetings in the area during the early 1960's regarding the possibility of initiation of a commercial fishery, but the negative response

from village residents plus the absence of salmon buyers precluded this development.

In late August of 1968, the commercial salmon fishing was opened by emergency order in Goodnews Bay. This commercial fishery was created as a result of a request from area residents and Department surveys, which indicated that a harvestable supply of salmon was available. The fishery has been sporadic in nature due to inconsistent processing capabilities and inclement weather.

The commercial salmon season was opened June 23. No catches were reported until June 26. The harvest was composed of 2,149 kings, 9,063 reds, 17,547 cohos, 418 pinks and 6,583 chums, totaling 35,760 fish. The king salmon catch was 34.9 percent below the 1974 harvest and 27.2 percent below the recent five-year average, while numbers of reds were almost identical to 1974 levels but were 128.6 percent above the recent average. The coho salmon harvest was 17.8 percent below 1974 but 144.8 percent above the five-year average, while the chum salmon harvest was 26.4 percent below 1974 levels and 14.9 percent below the recent average. Commercial fishing terminated on August 26 when buyers left the subdistrict (Table 17).

A total of 50 fishermen made commercial landings in 1975, an increase of one fisherman above 1974 levels.

This fishery has an important potential enforcement problem, indicated by fishermen's reports of illegal commercial fishing in the Goodnews River. Department personnel held several meetings in Goodnews Bay to discuss the fishing activities, but apparently this mode of fishing has been accepted there since the inception of the commercial fishery.

Subsistence Fishery:

Subsistence information from Goodnews Bay was very sparse for 1975. Subsistence catches from the subdistrict are always minimal.

Escapement:

Escapements of king salmon in the Goodnews River were very poor, while numbers of other species were judged average.

OUTLOOK FOR 1976

King Salmon

The Kuskokwim River king salmon run has been depressed in recent years. The factors causing the depression could all affect the 1976 king salmon run to varying extents, resulting in continued depression of the king salmon run. These factors include:

1) Excessive commercial and subsistence harvests made during parent years.
2) High seas harvesting by the Japanese.
3) Unsuitable environmental conditions in fresh and/or salt water.
4) Any combination of the above.

However, brood year escapements were judged excellent and the 1974 Japanese high seas catches were excellent also, possibly presaging a good return of kings during 1976. Due to the depressed nature of recent runs and to the lack of information, the Department's future management strategy will be conservative and will be formulated in expectation of continued run depression.

Red Salmon:

Little comparable escapement data is available for red salmon, however, run strength is expected to be average.

Coho Salmon:

Recent year commercial catches have indicated a possible "cyclic" coho salmon run. If the previous trend holds true for 1976, the coho salmon run should be below average in 1976.

Pink Salmon:

Numbers of pink salmon are expected to be average to above average due to even-year cyclic peaking.

Chum Salmon:

Little brood year escapement information is available for chums, however, runs are expected to be average.

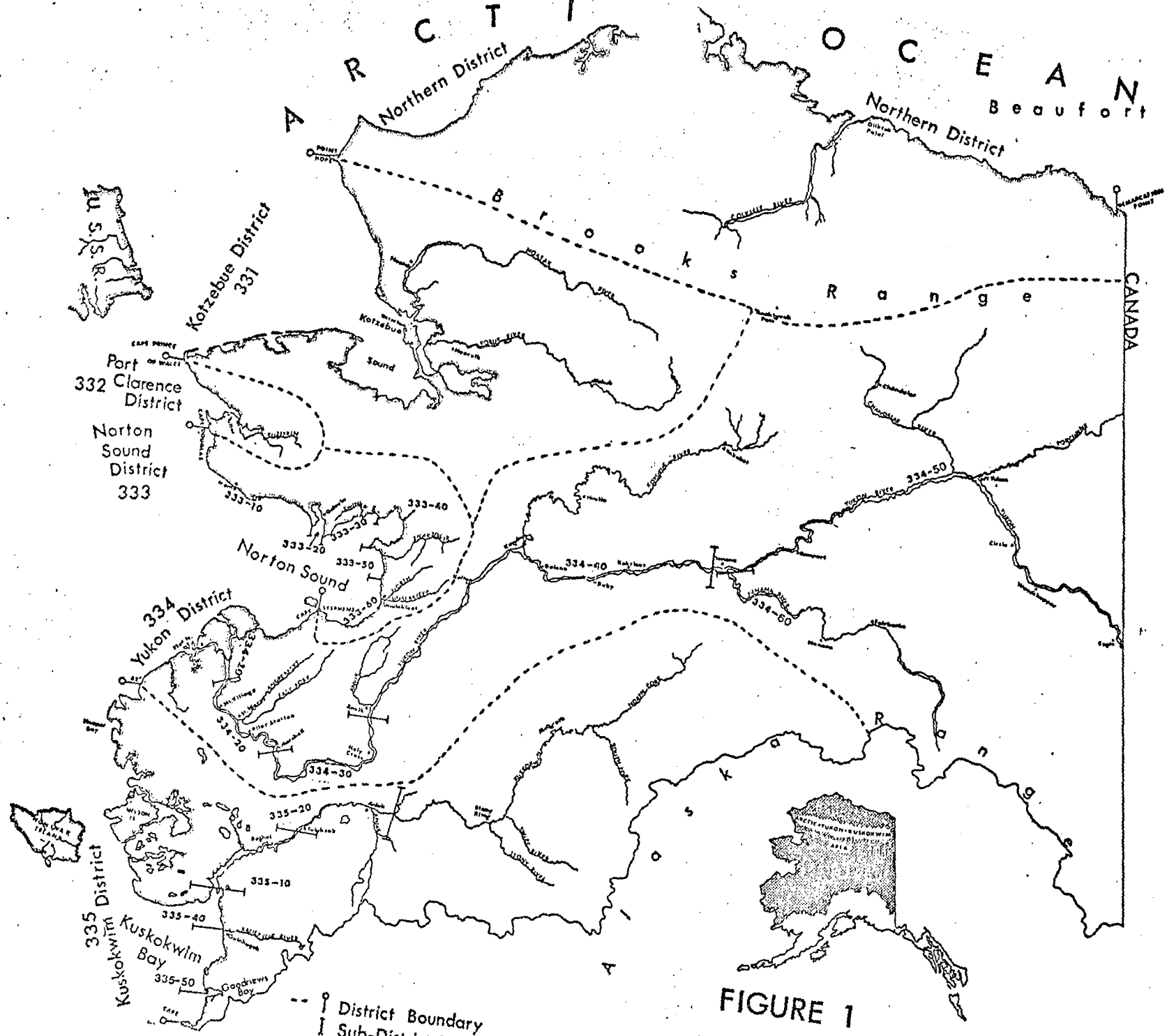

FIGURE 1

A-Y-K AREA MAP

Table - Kuskokwim District mileages

Location	Mileages from Mouth	Mileages from Kwegooyuk 1/	Mileages from Bethel
Kuskokwim River			
Mouth	0	-30	-86
Eek Island 60°10' N. lat.	23	- 7	-63
Kwegooyuk 1/	30	0	-56
Tuntutuliak Village	43	13	-43
Kialik River Mouth	42	12	-44
Kialik Forks	58	28	-60
Fowler Island	55	25	-31
Johnson River	66	36	-20
Nunapitchuk	98	68	-52
Kasigluk	99	69	-53
Napakiak	72	42	-14
Oscarville	79	49	- 7
Napaskiak	79	49	- 7
Bethel	86	56	0
Kuskokwak River	102	72	16
Kwethluk	104	74	18
Akiachuk	112	82	26
Akiak	126	96	40
Mishevik Slough	131	101	45
Tuluksak	143	113	57
Lower Kalskag	189	159	103
Kalskag	192	162	106
Aniak	225	195	139
Chuathbaluk (Russian Mission)	236	206	150
Kolmakof River	249	219	163
Napaimiut	258	228	172
Oskawalik River	292	262	206
Crooked Creek	295	265	209
Georgetown	313	283	227
Red Devil	332	302	246
Sleetmute	339	309	253
Holitna River	341	311	255
Kasheglok	465	435	379
Kogrukluk River	467	437	381
Stony River Village	369	339	283
Stony River			
Lime Village			
Swift River	386	356	300
Devil's Elbow	407	377	321
Candle	491	461	405
McGrath	511	481	425
Big River	558	528	472
Medfra	582	552	496
Nicolai			
Telida			
Kuskokwim Bay			
Quinhagak	-19	-49	-105
Kagati Lake			
Goodnews Bay	-54	-84	-140
Platinum	-57	-87	-143
Goodnews Bay Village	-66	-96	-152
Chagvan Bay	-73	-103	-159

1/ Kwegooyuk is the location of Department's test fishing site.

Table 2. List of fishes found in the Kuskokwim area.

Species code	Genre species	Common name
601	Lampetra japonica	Arctic lamprey
570	Stenodus leucichthys	Shee
581	Coregonus nasus	Broad Whitefish
582	Coregonus pidschian	Humpback Whitefish
583	Coregonus sardinella	Least Cisco
	Coregonus laurettae	Bering Cisco
585	Prosopium cylindraceum	
	Prosopium coulteri	Pygmy Whitefish
610	Thymallus arcticus	Arctic Grayling
550	Salvelinus namaycush	Lake Trout
520	Salvelinus alpinus	Arctic Char
530	Salvelinus malma	Dolly Varden
541	Salmo gairdneri	Rainbow Trout
410	Oncorhynchus tshawytscha	King Salmon
420	Oncorhynchus nerka	Red Salmon
430	Oncorhynchus kisutch	Coho Salmon
440	Oncorhynchus gorbuscha	Pink Salmon
450	Oncorhynchus keta	Chum Salmon
513	Osmerus eperlanus	Boreal Smelt
514	Hypomesus olidus	Pond Smelt
560	Esox lucius	Pike
605	Dallia pectoralis	Blackfish
650	Hybopsis plumbea	Lake Chub
640	Catostomus catostomus	Longnose Sucker
670	Percopsis omiscomaycus	Trout-perch
590	Lota lota	Burbot, Lush
609	Pungitius pungitius	9-spine Stickleback
608	Gasterosteus aculeatus	3-spine Stickleback
161	Cottus aleuticus	Coastrange Sculpin
162	Cottus cognatus	Slimy Sculpin

ESTUARINE

113	Eleginus gracilis	Saffron Cod
166	Oligocottus maculosus	
121	Pleuronectes stellatus	Starry Flounder
122	Liopsetta glacialis	Arctic Flounder
230	Clupea pallasii	Pacific Herring

Table 3 . Kuskokwim district emergency order and regulation, 1975.

E.O. No.	Date		Justification
1	16 June	Subdistrict 1 opened for 6-hr commercial period.	Provide additional data regarding run size and fishing effort.
2	18 June	Subdistrict 1 opened for 12-hr commercial period.	Low commercial and subsistence effort levels should have aided escapements of kings.
3	19 June	Subdistrict 2 opened to commercial fishing.	Kings present in sufficient numbers.
4	24 June	Hooper Bay opened to subsistence salmon roe sales.	Based upon meeting between village and Department personnel.
5	25 June	Subdistrict 1 closed to commercial fishing.	Harvest goal reached.
6	26 June	Subdistrict 4 and 5 opened to commercial fishing.	Commercial buyer now present.
7	29 June	Lower subdistrict 1 opened to 6-hr commercial period	Provide additional data regarding run size and fishing effort.
8	29 June	Subsistence king salmon roe sales terminated in subdistricts 1 and 4.	As per emergency regulation.
9	9 July	Hooper Bay closed to Subsistence salmon roe sales.	Subsistence salmon harvest requirements met.
10	2 July	Lower subdistrict 1 opened to 6-hr commercial period.	Prevent over harvest of chums.
11	6 July	Lower subdistrict 1 opened to 6-hr commercial period.	High effort and catches, prevent over harvest of chums.
12	13 July	Subdistricts 4 and 5 opened to commercial fishing for three 12-hr periods per week.	Majority of king run has passed through the fisheries.
13	14 July	Subdistrict chum salmon roe sales terminated in subdistrict 1.	Traditional subsistence harvest levels reached. Prevent wasteage and over harvest of chum.
14	15 July	Subdistrict 1 closed to commercial fishing.	Record effort and catch, prevent over harvest of chums.
15		not used	
16	15 July	Subsistence chum salmon roe sales terminated in subdistrict 2.	Traditional subsistence harvest levels reached. Prevent wastage and over harvest of chum.

Table 3 . Kuskokwim district emergency orders and regulations, 1975.

E.O. No.	Date		Justification
17	31 July	Subdistrict 1 opened to 6-hr commercial period.	Provide additional data regarding run size and fishing effort.
18	3 Aug	Fishing periods changed to encompass daylight hours in subdistrict 4.	Aid fishermen safety.
19	3 Aug	Subdistrict 1 opened to 48-hr commercial fishing periods.	Relatively light effort and catches.

EMERGENCY REGULATIONS

1. Delinated regulation pertaining to subsistence salmon roe sales.

2. Extended licensing deadline.

Table 4 . Kuskokwim district regulatory changes adopted by the Board of Fisheries, December 1975

1. Commercial fishing periods were reduced from 12-hour to 6-hour duration in subdistrict 1 during June 1 through July 31. This was necessary due to the increased effort and efficiency of the fleet.

2. After January 1, 1977, commercial and subsistence gillnets with smaller than 6-inch mesh may not exceed 45 meshes depth, while nets with larger than 6-inch mesh may not be more than 30 meshes in depth. During 1974 and 1975, deeper nets (ie. 40-60 mesh king gear, 60 mesh chum gear) began appearing in increasing number. This regulation attempts to help stabilize the efficiency of the fleet by eliminating the "deep net" trend.

3. The aggregate length of drift or set gillnet may not exceed 50 fathoms for commercial or subsistence nets. This closes a loophole in the regulations since, previously, length restrictions were only applied to commercial gear.

4. Fishwheels may not be used for commercial fishing in subdistrict 2. This regulation follows the policy of eliminating gear not utilized. Fishwheels have not been used for commercial fishing subdistrict 2.

5. In subdistricts 1 and 2, no part of a set gillnet located within a tributary to the Kuskokwim River may be operated within 150 feet of any part of another set net. This will prevent two nets on opposite sides of a river from effectively blocking off a stream.

6. Set gillnets operated in tributaries to the Kuskokwim River must be attached to the bank, fished substantially in a straight line and perpendicular to the bank. This regulation prevents: 1) nets being used as effective fish traps; 2) nets from blocking the center channels of stream; and 3) will prevent the introduction of "hooks" as a fishing method.

7. Fishing closures will be reinstituted in subdistrict 1 for 24-hours before each commercial fishing period during August 1 through August 31. This regulation will help control illegal fishing activities and prevent over harvest of coho salmon.

8. Commercial fishing schedules in subdistricts 4 and 5 will be accomplished through emergency orders. Fishing conditions, processor availability and numbers of fish vary greatly in these subdistricts. This regulation will allow for more flexible management in these subdistricts.

9. The inner bay boundary in subdistrict 5 will be a line between Ufigag Creek and a marker placed near the Tunulik River.

10. The northern boundary of the Kuskokwim area will be Cape Romanzof instead of 62^{0} N. latitude.

Table 5 . Summary of special projects conducted in the Kuskokwim district, 1975.

1. Kuskokwim River Test Fishing

   a. Location: Kwegooyuk on the east bank of the mouth of the Kuskokwim River located 56 river miles downstream from Bethel.
   b. Objectives: Determine run timing and relative abundance of kings, red and chum salmon.
   c. Results: A total of 704 king, 53 red and 1,072 chum salmon was taken in set gillnets fished from June 3 through July 16. The king salmon run was below average magnitude and was composed of a high percentage of male fish. The chum salmon run was above average and peaked about July 3.

2. Kogukluk River Counting Tower

   a. Location: Mouth of the Kogrukluk River, tributary to the Holitna River.
   b. Objectives: Determine daily and seasonal timing and magnitude of all species of salmon entering this stream. Conduct visual size estimate.
   c. Results: A total of 1,970 king, 8,290 chum, 2,305 red and 3 pink was counted passing the tower site. The number of king salmon enumerated was similar to the 1973 and 1974 seasons, while visual size estimates indicated a high percentage of age 5_2 fish. The chum salmon escapement was the second highest recorded, while numbers of reds were the highest on record.

3. Kwethluk - Kisaralik Investigation

   a. Location: Kwethluk and Kisaralik River areas
   b. Objectives: Obtain subsistence information, spawning distribution data, along with physical stream characteristics.
   c. Results: Daily subsistence information was obtained from the village of Kwethluk, Akiachak and Akiak. The Kwethluk and Kisaralik Rivers were surveyed by boat and the following information was gathered: 1) channel; 2) stream widths; 3) volume and velocity data; and 4) spawning distribution data.

4. Commercial Salmon Catch Sampling

   a. Location: Bethel.
   b. Objectives: Obtain age, sex and size information for commercially caught fish.
   c. Results: Samples of all species were sampled, analysed and presented in separate reports.

Table 6 Kuskokwim district licenses issued by village and subdistrict, 1975.

Stat. Area	Village	Commercial	Vessel	Drift	Set	Total
335-10	Kwigillingok	20	16	15	2	53
	Kipnuk	7	6	6	0	19
	Kongiganak	32	27	27	0	86
	Tuntutuliak	50	37	36	1	124
	Eek	51	40	40	0	131
	Kasigluk	51	41	39	5	136
	Nunapitchuk	62	44	44	2	152
	Atmauthluak	26	21	21	0	68
	Napakiak	55	45	45	1	146
	Oscarville	9	6	6	0	21
	Napaskiak	26	22	21	3	72
	Bethel	312	204	196	19	731
	Kwethluk	104	77	76	2	259
	Akiachak	67	41	39	2	149
	Akiak	33	24	24	0	81
	Tuluksak	28	19	19	0	66
	Mekoryuk	1	0	0	0	1
	Anchorage	3	2	1	1	7
	Out of State	3	0	0	0	3
335-20	Kalskag	3	3	3	0	9
	Aniak	6	6	5	1	18
	Chuathbaluk	2	0	0	0	2
335-40	Quinhagak	90	79	79	0	248
335-50	Goodnews Bay	52	40	39	6	137
	Platinum	6	4	3	3	16
SUBTOTALS	335-10	940	672	655	38	2,305
	335-20	11	9	8	1	29
	335-40	90	79	79	0	248
	335-50	58	44	42	9	153
TOTALS		1,099	804	784	48	2,735

Table 7 Commercial and subsistence salmon catches by species and statistical area, Kuskokwim district, 1975.

Statistical Area	King	Red	Coho	Pink	Chum [1]	Total
335-10 Lower Kuskokwim						
Commercial	20,816	4	84,120	5	181,786	286,731
Subsistence [2]	37,745	-	- [3]	-	123,548	161,293
Total	58,561	4	84,120	5	305,334	448,024
335-20 Middle Kuskokwim						
Commercial	1,319	-	-	-	2,385	3,704
Subsistence [2]	7,830	-	-	-	34,704	42,534
Total	9,149	-	-	-	37,089	46,238
335-30 Upper Kuskokwim						
Commercial	0	-	-	-	0	0
Subsistence [2]	1,904	-	-	-	18,137	20,131
Total	1,904	-	-	-	18,137	20,131
Subtotal Kuskokwim River						
Commercial	22,135	4	84,120	5	184,171	290,435
Subsistence [2]	47,569	-	-	-	176,389	223,958
Total	69,704	4	84,120	5	360,560	514,393
335-40 Quinhagak						
Commercial	3,994	8,969	10,096	540	34,402	58,001
Subsistence [2]	3,261	-	-	-	4,040	7,301
Total	7,255	8,969	10,096	540	74,442	65,302
335-50 Goodnews Bay						
Commercial	2,149	9,063	17,547	418	6,583	35,760
Subsistence [2]	-	-	-	-	-	-
Total	2,149	9,063	17,547	418	6,583	35,760
Total Kuskokwim District						
Commercial	28,278	18,036	111,763	963	225,156	384,196
Subsistence [2]	50,830	-	-	-	180,429	231,259
Total	79,108	18,036	111,763	963	405,585	615,455

1/ Contains small numbers of red and pink salmon.

2/ Expanded data.

3/ Insufficient data for valid determination.

Table 8 Average weight of salmon taken in the Kuskokwim district commercial fishery, 1975. [1]

Area		Average Weights by Species [2]				
		King	Red	Coho	Pink	Chum
Kuskokwim River:	335-10[3] 335-20	18.7(8.5)	[4]	7.8(3.5)	[4]	6.7(3.0)
Quinhagak:	335-40	11.8(5.3)	[4]	8.2(3.7)	[4]	6.7(3.0)
Goodnews Bay:	335-50	14.3(6.5)	[4]	8.6(3.9)	[4]	5.8(2.6)
Totals: Kuskokwim Area		14.9(6.8)	[4]	8.2(3.7)	[4]	6.4(2.9)

[1] Data obtained from processor weights, randomly sampled.

[2] Pounds (kilograms).

[3] Samples taken in 335-10 only.

[4] Data insufficient or unavailable.

Table 9 . Kuskokwim district processors and associated data, 1975.

Commercial Operator	Product	Average price paid to fishermen (estimated)	Subdistrict
James A. Charles Tuntutuliak, Alaska	frozen salmon king coho chum	 $ 8.00 each 2.00 each 1.00 each	 1
Commencement Bay Fisheries 1112 54th Ave. East Tacoma, Wash. 98424	frozen salmon king red coho pink chum	 .45/lb. .35/lb. .50/lb. .50/lb. .28/lb.	 4
J.B. Crow & Sons Box 567 Bethel,Alaska 99559	fresh salmon king coho chum salmon roe	 .40/lb. .30/lb. .22/lb. 1.50/lb.	 1
Elm Corp. Box 352 Bethel, Alaska 99559	fresh salmon king coho chum salmon roe	 .50/lb. 1.50 each 1.50 each 1.50/lb.	 1, 2
Kachemak Seafoods Inc. PO Box 129 Togiak, Alaska	fresh salmon king red coho pink chum		5
Kemp-Paulucci Seafoods Inc. Box 252 Bethel,Alaska 99559	frozen salmon king coho chum salmon roe	 .50/lb. .35/lb. .25/lb. 1.50/lb.	1
Northern Commercial Box 367 Bethel, Alaska 99559	frozen Whitefish		1
Patson Enterprises Box 445 Bethel, Alaska 99559	fresh salmon king coho chum salmon roe	 .50/lb. .30/lb. .27/lb. 1.50/lb.	1, 2

Table 9 . Kuskokwim area processors and associated data, 1975. (continued)

Commercial Operator	Product	Average price paid to fishermen (estimated)	Subdistrict
Swanson Bros. Box 478 Bethel, Alaska 99559	Dried kings frozen Whitefish	1.90-2.50/lb. .30-1.00/lb.	1
Togiak Fisheries 614 Lowman Bldg Seattle, Washington	fresh salmon king red coho pink chum		4, 5

Table 10 Commercial catches of whitefish and sheefish, Kuskokwim River, 1975.

Month	Fishermen 1/	Whitefish	Sheefish	Value to Fishermen
January	2	240		$ 240.00
February	1	527		$ 526.25
March	9	281	8	$ 329.00
April	14	129	13	$ 224.00
May				
June				
July	4	419		$ 539.75
August	214	1,978	14	$ 1,693.00
September	5	429		$ 429.00
October				
November	6	107	4	$ 124.75
December	6	93	4	$ 109.00
Total	256	4,203	43	$ 4,214.75

1/ Majority of fishermen represent commercial salmon fishermen making incidental harvest during August.

Table 11a Commerical salmon catches, lower Kuskokwim Rivers (subdistrict 1,335-10), all gear combined, 1975.

Period Code	Date of Landing	Hours Open to Fishing	Fisherman	Fishermen Hours	Catch/ Fisherman Hour King	Coho	Chum	King	Red	Coho	Pink	Chum
	6/16	6										
01	Period	6	12	72	5.0			359				
	6/19	6										
	6/20											
02	Period	12	46	552	1.9		0.1	1,031				3
	6/23	6										
	6/24	6										
03	Period	12	483	5,796	2.9		0.7	17,235				3,79
	Subtotal 1/	30	541	6,420	2.9		0.6	18,625				3,82
	6/30	6										
04	Period	6	279	1,674	0.4		18.6	691				31,21
	7/3	6										
05	Period	6	360	2,160	0.3		16.0	636				35,52
	7/7	6										
06	Period	6	369	2,214	0.2		17.8	421				39,39
	7/10	6										
07	Period	6	304	1,824	0.1		21.9	195				39,91
	7/14	6										
08	Period	6	326	1,956	0.1		10.8	179				21,09
	Subtotal 2/	30	539	9,828	0.2		17.0	2,122				167,13
	8/1	6										
09	Period	6	142	852		2.8	2.5	5		2,357	1	2,11
	8/4	18										
	8/5	24										
	8/6	6										
10	Period	48	292	14,016		0.9	0.4	40	1	12,500	2	5,63
	8/11	18										
	8/12	24										
	8/13	6										
11	Period	48	373	17,904		1.0		8		18,551		2,24
	8/18	18										
	8/19	24										
	8/20	6										
12	Period	18	388	18,624		1.9		16	3	34,435	2	74
	8/25	~~18~~										
	8/26	24										
	8/27	6										
13	Period	48	270	12,960		1.3				16,277		7
	Subtotal 3/	~~198~~ ~~168~~	531	64,356		1.3	0.2	69	4	84,120	5	10,81
	Grand Total	258	737	80,604				20,816	4	84,120	5	181,78

1/ King salmon season 6/16 - 6/24.

2/ Chum salmon season 6/30 - 7/14.

3/ Coho salmon season 8/1 - 8/27.

Table 11b Commercial salmon catches, lower Kuskokwim River (subdistrict 1,335-11), all gear combined, 1975.

Period Code	Date of Landing	Hours Open to Fishing	Fishermen Fisherman Hours	Catch/ Fisherman Hours King	Coho	Chum	King	Red	Coho	Pink	Chum
	6/6	6									
01	Period	6		Strike -		No Catch					
	6/19	6									
	6/20	6									
02	Period	12		Strike -		No Catch					
	6/23	6									
	6/24	6									
03	Period	12	51	612	7.7	2.1	4,689				1,258
	Subtotal 1/	30	51	612	7.7	2.1	4,689				1,258
	6/30	6									
04	Period	6	279	1,674	0.4	18.6	691				31,216
	7/3	6									
05	Period	6	360	2,160	0.3	16.5	636				35,525
	7/3	6									
06	Period	6	369	2,214	0.2	17.8	421				39,396
	7/10	6									
07	Period	6	304	1,824	0.1	21.9	195				39,910
	7/14	6									
08	Period	6	326	1,956	0.1	10.8	179				21,092
	Subtotal 3/	30	539	9,828	0.2	17.0	2,122				167,139
	8/1	6									
09	Period	6	72	432		1.5	3		1,365	1	667
	8/4	18									
	8/5	24									
	8/6	6									
10	Period	48	149	7,152		0.3	20		5,993	2	1,879
	8/11	18									
	8/12	24									
	8/13	6									
11	Period	48	206	9,888		0.1	7		9,018		794
	8/18	18									
	8/19	24									
	8/20	6									
12	Period	48	182	8,736			6	3	12,604		180
	8/25	18									
	8/26	24									
	8/27	6									
13	Period	48	117	5,616	1.2				6,820		10
	Subtotal 3/	198	342	31,824	1.1	0.1	36	3	35,800		3,530
	Grand Total	258	624	42,264			6,847	3	35,800		171,927

1/ King salmon season 6/6 - 6/24.

2/ Chum salmon season 6/30 - 7/14.

3/ Coho salmon season 8/1 - 8/27.

Table 11c Commercial salmon catches, lower Kuskokwim River (Subdistrict 1,335-12), all gear combined, 1975.

Period Code	Date of Landing	Hours Open to Fishing	Fishermen	Fishermen Hours	Catch/ Fisherman Hour King	Coho	Chum	King	Red	Coho	Pink	Chum
	6/16	6										
01	Period	6	12	72	5.0			359				3
	6/19	6										
	6/20	6										
02	Period	12	46	552	1.9			1,031				34
	6/23	6										
	6/24	6										
03	Period	12	432	5,184	2.4		0.5	12,546				2,534
	Subtotal 1/	30	464	5,808	2.4		0.4	13,926				2,571
	8/1	6										
09	Period	6	70	420		2.4	3.4	2		992		1,446
	8/4	18										
	8/5	24										
	8/6	6										
10	Period	48	150	7,200		0.9	0.5	20	1	6,507		3,760
	8/11	18										
	8/12	24										
	8/13	6										
11	Period	48	217	10,416		0.9	0.1	1		9,533		1,453
	8/18	18										
	8/19	24										
	8/20	6										
12	Period	48	206	9,888		2.2	0.1	10		21,831	2	566
	8/25	18										
	8/26	24										
	8/27	6										
13	Period	48	182	8,736		1.1				9,457		63
	Subtotal 2/	198	410	36,660		1.3		33	1	48,320	2	7,288
	Grand Total	228	594	42,468				13,969	1	48,320	2	9,859

1/ King salmon season 6/16 - 6/24.

2/ Coho salmon season 8/1 - 8/27.

Table 12 Age and sex compositions of Kuskokwim district king salmon sampled at various locations, 1975.

Area (gear)	Sex	Combined Age Classes No.	%	Age 4_2 No.	%	Age 5_2 No.	%	Age 6_2 No.	%	Age 7_2 No.	%	Age 8_2 No.	%
Bethel (8½" mesh 1/ gill net)	Male	133	71.9	1	0.5	113	61.1	12	6.5	7	3.8	0	0.0
	Female	52	28.1	0	0.0	40	21.6	8	4.3	4	2.2	0	0.0
	Total	185	100.0	1	0.5	153	82.7	20	10.8	11	6.0	0	0.0
Kwegooyuk (8½" 2/ mesh set gill net)	Male	260	69.9	14	3.7	139	37.4	96	25.8	11	3.0	0	0.0
	Female	112	30.1	0	0.0	60	16.1	46	12.4	6	1.6	0	0.0
	Total	372	100.0	14	3.7	199	53.5	142	38.2	17	4.6	0	0.0
Kwegooyuk (5½" 2/ mesh set gill net)	Male	68	81.9	21	25.3	29	34.9	16	19.3	1	1.2	1	1.2
	Female	15	18.1	0	0.0	10	12.1	3	3.6	2	2.4	0	0.0
	Total	83	100.0	21	25.3	39	47.0	19	22.9	3	3.6	1	1.2
Quinhagak (5½" 1/ mesh gill net)	Male	147	73.5	3	1.5	66	33.0	62	31.0	14	7.0	2	1.0
	Female	53	26.5	0	0.0	0	0.0	29	14.5	17	8.5	7	3.5
	Total	200	100.0	3	1.5	66	33.0	91	45.5	31	15.5	9	4.5

1/ Commercial catch sample.

2/ Test fish sample.

Table 13 Commercial salmon catches, upper Kuskokwim River (Subdistrict 2,335-20), all gear combined, 1975.

Statistical Week	Date of Landing	Hours Open to Fishing	Fishermen	Fishermen Hours	Catch/ Fishermen Hour							
					King	Coho	Chum	King	Red	Coho	Pink	Chum
	6/23	6										
	6/24	24										
	6/25	24										
	6/26	24										
	6/27	18										
	Period	96	38	3,648	0.4		0.7	1,319				2,385
	Subtotal	96	38	3,648	0.4		0.7	1,319				2,385
	Grand Total	96	38	3,648	0.4		0.7	1,319				2,385

Table 15 Aerial salmon escapement survey in the Kuskokwim area, 1975.

	Survey Conditions	Date	Kings	Reds	Cohos	Pinks	Chums
Kuskokwim Bay							
Carter River		8/5					present
Goodnews River System							
main river: lake to Nimgun Creek		8/5	200	585			60
main river: mouth to Slate Creek		7/20	10	1,010		75	375
main river: Slate Creek to Canyon Creek		7/20	10	354			60
main river: Canyon Creek to lake		7/20	8	310			40
Awayak Creek:							
mouth to headwater lake		8/20	no fish seen				
North Lake		8/20	3				
South Lake		8/20	no fish seen				
Goodnews Lake:							
main lake		7/20		2,200			
lake inlet		8/5		1,700			
main lake		8/5		1,050			
lake inlet		8/20		350			
Middle Fork - Goodnews River:							
main river: mouth to Kukaklim Creek		7/20	85	1,757			30
main river: Kukaklim Creek to junction of upper fork		7/20	8	360			
lake: north fork		7/20		260			
lake: north fork		8/20		950			
lake: south fork		7/20	no fish seen				
Kukaklim Lake:							
main lake		7/20		1,750			
inlet		7/20		350			
lakes		7/20		200			
Indian River		8/5	2				
Kanektok River System							
main river: Kagati Lake to Paryon Creek		8/5	17				10
main river: Paryon Creek to Klak Creek		8/5	99	390			few
main river: Klak Creek to foothills		8/5	210				80
main river: Foothills to mouth		8/5	952	300			1,510
Kagati Lake:							
main lake		8/5		5,200			
three unnamed lakes		8/5		128			
Kinegnak River		8/5	3	60			850
Unaluk River		8/5	44	80			450
Kuskokwim River							
Aniak River System							
main river: lake to Salmon River	fair	7/31	145				50
main river: Salmon River to mouth	fair	7/31	57				10,175
Kipchuk River:	fair	7/31	94				855
Salmon River:	fair	7/31	32				1,570
Waterboot Creek:	fair	7/31	5				21
Crooked Creek							
main river: mouth to Donlin Creek	poor	8/1	2				27
Eek River							
Eek Lake to Rainy Creek		7/5	8	79			50
Eek Lake to mountains		7/5	40				few
mountains to mouth		7/5	25				6,000
upper 8 miles	fair/poor	7/20	13				
George River System							
main river: mouth to 5 miles above North Fork	poor	8/1	28				626
North River:							
lower 15 miles	fair	8/1	7				119
unnamed creek	poor	8/1	3				18

Table 15 Aerial salmon escapement survey in the Kuskowim area, 1975. (continued)

	Survey Conditions	Date	Kings	Reds	Cohos	Pinks	Chums
Holitna River System							
main river: mouth to Nogamiut	poor	8/2	51				384
main river: Nogamiut to Kogrukluk River	fair	8/2	597	387			9,281
Chukowan River:	fair/kings poor/chums	7/31	667	184			475
Hoholitna River:							
main river: Whitefish Lake to mouth	poor	8/2	122	13			442
South Fork:							
lower 5 miles	poor	8/2	15				76
Kogrukluk River:							
above tower	fair	7/31	1,047	479			2,191
below tower	fair	7/31	15	42			189
above tower	good	8/2	895	571			
below tower	good	8/2	21	75			260
Holokuk River System							
main river: mouth to headwaters	fair/poor	8/1	17	5			637
Chineekluk Creek:							
mouth to lake	fair/poor	8/1	15				64
Unnamed Creek:							
mouth to lake	fair	8/1	38	20			275
Kasigluk River							
main river: lower 25 miles	poor	7/24	20				1,350
Kisaralik River							
main river: mouth to airstrip	poor	7/21	few				few
main river: airstrip to Golden Gate Falls	poor	7/21	no fish seen				
main river: mouth to airstrip	poor	7/24	52				6,311
main river: airstrip to Golden Gate Falls	fair	7/24	77				4,070
main river: Golden Gate Falls to lake	excellent	7/24	no fish seen				
Kwethluk River							
main river: mouth to foothills	poor	7/25	few				few
Middle Fork - Kuskokwim River							
Bear Creek:	poor	8/6	36				
Pitka Fork:							
Salmon River to 5 miles above Sheep Creek	poor	8/6	37				
Salmon River:	poor	8/6	272				
Oskawalik River							
main river: mouth to 30 miles upstream	fair	8/1	66	15			1,953
Unnamed Creek:	fair	8/1	27				135
Stony River							
Can Creek:							
lower 15 miles	poor	8/2	6				275
Swift River							
Cheeneetnuk River:	poor	8/6					

Table 16. Commercial salmon catches, Quinhajak (Subdistrict 4,335-40), all gear combined, 1975.

Period Code	Date of Landing	Hours Open to Fishing	Fishermen	Fishermen Hours	Catch/ Fishermen Hour King	Red	Coho	Chum	King	Red	Coho	Pink	Chum
	6/23	6											
	6/24	6											
01	Period	12	0	0									
	6/26	6											
	6/27	6											
02	Period	12	0	0									
	7/3	6											
	7/4	6											
03	Period	12	58	696	2.3	2.0		1.9	1,587	1,432		6	1,354
	7/7	6											
	7/8	6											
04	Period 1/	12	69	828	0.8	2.8		5.3	665	2,343		26	4,347
	7/10	6											
	7/11	6											
05	Period	12	69	828	0.4	1.6		0.6	367	1,288		52	2,442
	7/14	6											
	7/15	6											
06	Period	12	86	1,032	0.5	1.2		0.6	533	1,235		58	6,461
	7/16	6											
	7/17	6											
07	Period	12	82	984	0.4	0.9		0.1	368	883		105	6,893
	7/18	6											
	7/19	6											
08	Period	12	106	1,272	0.2	0.9		3.9	238	1,141	2	181	4,948
	7/21	6											
	7/22	6											
09	Period	12	96	1,152	0.1	0.2		2.2	109	264	18	56	2,558
	7/23	6											
	7/24	6											
10	Period	12	68	816	0.1	0.2		1.6	54	127	17	24	1,282
	7/25	6											
	7/26	6											
11	Period	12	44	528		0.2	0.1	2.7	24	111	30	15	1,409
	7/28	6											
	7/29	6											
12	Period	12	56	672		0.1	0.1	1.4	18	39	99	6	954
	7/30	6											
	7/31	6											
13	Period	12	41	492		0.1	0.3	2.0	18	51	148	7	1,001
	8/1	6											
	8/2	6											
14	Period 2/	12	20	240		0.8	0.6	1.9	8	20	141	2	466
	8/4	6											
	8/5	6											
15	Period	12	21	252			0.5	0.9	4	24	138	3	227
	8/6	6											
	8/7	6											
16	Period	12	13	156			0.8	0.9	3	10	122	1	147
	8/8	6											
	8/9	6											
17	Period	12	22	264			1.0	0.4	6	6	269	1	95
	8/11	6											
	8/12	6											
18	Period	12	16	192			1.8	0.4	1	7	346		76
	8/13	6											
	8/14	6											
19	Period	12	18	216			3.2	0.3	2	7	682		57
	8/15	6											
	8/16	6											
20	Period	12	30	360			5.3	0.3	1	13	1,891		110
	8/18	6											
	8/19	6											
21	Period	12	27	324			5.8			3	1,871	3	15
	8/20	6											
	8/21	6											
22	Period	12	29	348			5.0		1		1,731	1	13
	8/22	6											
	8/23	6											
23	Period	12	28	336			4.6			5	1,551	1	16
	8/25	6											
	8/26	6											
24	Period	12	27	324			4.8				1,569		
	Grand Total	288	127	12,312					3,994	8,969	10,096	540	34,402

1/ King salmon season considered ended when catches show definite decrease.

2/ Coho salmon season 8/1 - 8/26.

Table 17. Commercial salmon catches, Goodnews Bay (Subdistrict 5,335-50), all gear combined, 1975.

Period Code	Date of Landing	Hours Open to Fishing	Fishermen	Fishermen Hours	Catch/ Fishermen Hour King	Red	Coho	Chum	King	Red	Coho	Pink	Chum
	6/23	6											
	6/24	6											
01	Period	12	14	168	0.6	2.0		0.9	106	341			149
	6/26	6											
	6/27	6											
02	Period	12	24	288	1.2	1.6		0.2	341	471		1	46
	7/3	6											
	7/4	6											
03	Period	12	21	252	0.8	5.8		0.6	192	1,463		1	142
	7/7	6											
	7/8	6											
04	Period	12	30	360	1.3	5.5		0.8	473	1,978		28	271
	7/10	6											
	7/11	6											
05	Period	12	0	0									
	7/14	6											
	7/15	6											
06	Period	12	25	300	1.3	3.3		2.6	399	977		44	789
	7/16	6											
	7/17	6											
07	Period [1]	12	23	276	1.4	3.6		6.1	393	1,003		133	1,692
	7/18	6											
	7/19	6											
08	Period	12	13	156	0.5	6.5		5.3	83	1,010	1	101	828
	7/21	6											
	7/22	6											
09	Period	12	22	264	0.3	2.3		1.4	69	596		36	375
	7/23	6											
	7/24	6											
10	Period	12	18	216	0.1	1.3		1.2	17	273		16	253
	7/25	6											
	7/26	6											
11	Period	12	14	168	0.1	1.8		4.8	23	304	8	22	89
	7/28	6											
	7/29	6											
12	Period	12	18	96	0.1	1.6	0.3	2.3	5	178	32	8	221
	7/30	6											
	7/31	6											
13	Period	12	19	228		0.7	0.4	1.4	8	151	91	9	318
	8/1	6											
	8/2	6											
14	Period [2]	12	13	156		0.6	1.3	1.0	6	89	195	3	157
	8/4	6											
	8/5	6											
15	Period	12	16	192		0.4	1.8	1.1	4	78	343	5	203
	8/6	6											
	8/7	6											
16	Period	12	22	264		0.3	1.3	0.5	3	72	347	4	125
	8/8	6											
	8/9	6											
17	Period	12	10	120		0.1	3.9	0.6	10	28	808		114
	8/11	6											
	8/12	6											
18	Period	12	24	288		0.1	4.4	0.2	4	38	1,268	3	47
	8/13	6											
	8/14	6											
19	Period	12	23	276		0.1	6.8	0.1	7	28	1,886		38
	8/15	6											
	8/16	6											
20	Period	12	25	300		0.1	5.6		7	10	1,690	1	26
	8/18	6											
	8/19	6											
21	Period	12	25	300			15.8		1		4,744		13
	8/20	6											
	8/21	6											
22	Period	12	17	204			4.6		1	7	934	1	3
	8/22	6											
	8/23	6											
23	Period	12	30	360			9.7		4	3	3,504	3	5
	8/25	6											
	8/26	6											
24	Period	12	14	168			12.1				2,038		
	Grand Total	288	50	5,400					~~2,149~~ 2,156	~~9,063~~ 9,096	~~17,547~~ 17,889	~~418~~ 419	~~6,583~~ 5904

1/ King salmon season considered ended when catches show definite decrease.

2/ Coho salmon season 8/1 - 8/26.

Appendix Table 1 Kuskokwim district commercial and subsistence salmon catches, 1913-1975.

	Commercial Catch						Subsistence Catch[1]		
Year	King	Red	Coho	Pink	Chum	Total	King	Other Salmon[2]	Total
1913	7,800					7,800			
1914		2,667				2,667			
1915									
1916	949					949			
1917	7,878					7,878			
1918	3,055					3,055			
1919	4,836					4,836			
1920	34,853					34,853			
1921	9,854					9,854			
1922	8,944	6,120				15,064			180,000
1923	7,254					7,254			
1924	19,253	900	7,167		7,167	34,487	14,700	203,148	217,848
1925	1,664	5,850				7,514	10,800	230,850	241,650
1926								738,576	738,576
1927								286,254	286,254
1928								481,090	481,090
1929								560,196	560,196
1930	7,515	2,448				9,963		538,650	538,650
1931	8,541					8,541		389,367	389,367
1932	9,399					9,399		746,415	746,415
1933							6,290	433,998	440,288
1934							20,800	597,132	617,932
1935	6,448		8,296			14,744	22,930	554,040	576,970
1936	624					624	33,500	549,423	582,923
1937	480					480		537,111	537,111
1938	624		828			1,452	10,153	400,242	410,395
1939	134					134	14,000	125,425	139,425
1940	247		500			747	8,000	415,523	423,523
1941	187		674			861	8,000	415,523	423,523
1942							6,400	325,339	331,739
1943							6,400	325,800	332,200

1946	2,288		674			2,962			
1947	5,356					5,356			

1951	4,210					4,210			
1954	57					57			
1959	3,760					3,760			
1960	5,985	5,649	5,498		3	17,135	19,457	337,067	356,524
1961	23,462	2,308	5,090	91	18,864	49,815	28,898	185,301	214,199
1962	20,869	10,307	12,572	4,340	45,949	94,037	13,596	164,417	178,013
1963	18,581	1	16,458		1	35,041	34,615	140,890	175,505
1964	21,246	13,422	28,992	939	707	65,306	30,853	214,942	245,795
1965	24,428	1,895	12,191	37	4,272	42,823	31,143	323,002	354,145
1966	25,823	1,030	22,985	268	2,610	52,716	53,606	201,002	254,608
1967	29,986	652	58,239		8,234	97,111	61,224	252,447	313,671
1968	43,157	5,884	154,302	75,818	19,684	298,845	34,986	301,531	336,517
1969	64,777	10,362	110,473	1,251	50,377	237,240	43,732	245,299	289,031
1970	65,273	12,645	62,442	27,440	60,720	228,070	71,376	263,746	335,122
1971	44,936	6,054	10,006	13	99,423	160,432	45,465	130,329	175,794
1972	56,939	4,312	23,880	1,952	97,197	184,280	43,335	131,514	174,849
1973	51,374	5,224	152,408	634	184,207	393,847	41,697	211,468	253,165
1974	30,570	29,003	179,579	60,015	196,127	495,331	29,590	321,258	350,848
1975	28,278	18,036	111,763	963	225,156	384,196	50,830	180,429	231,259
5 Year Average	49,814	11,448	85,663	18,010	127,535		46,293	211,663	257,956

1/ Subsistence catches for 1965-1969 have been revised and corrected.
2/ Primarily chum salmon.

Appendix Table 2. Kuskokwim district commercial vessel and gear licenses issued by subdistrict, 1960- 1975

Commercial Year	335-10	335-20	335-30	335-40	335-50	Other	Total
1960	46	30	2	13	-	-	91
1961	141	28	1	18	-	-	188
1962	289	32	3	31	-	-	355
1963	115	15	-	43	-	-	173
1964	139	14	-	26	-	-	179
1965	237	5	-	26	-	-	268
1966	235	4	-	8	-	10 2/	257
1967	302	5	-	17	-	-	324
1968	444	10	-	55	20	-	529
1969	461	5	-	78	57	-	601
1970	488	6	-	60	46	-	600
1971	551	24	-	51	28	-	654
1972	512	14	-	66	21	-	613
1973	646	15	-	61	24	-	746
1974	965	26	-	98	49	-	1,138
1975	940	11	-	90	58	-	1,099
5 Year Average	632	17	-	67	34	-	950

Vessel Year	335-10	335-20	335-30	335-40	335-50	Tender	Other	Total
1960	39	5	1	6	-		-	51
1961	139	13	1	17	-		-	170
1962	252	26	2	27	-		-	307
1963	111	10	-	33	-	3	-	157
1964	139	10	-	23	-	3	-	175
1965	195	5	-	23	-	1	-	224
1966	189	3	-	8	-		10 2/	210
1967	237	5	-	11	-	3	-	256
1968	343	8	-	39	18	10	-	418
1969	355	3	-	66	45	13	-	482
1970	373	5	-	53	37	11	-	479
1971	440	19	-	46	27	16	-	548
1972	428	13	-	53	18	8	-	520
1973	474	14	-	52	18	16	-	558
1974	738	17	-	89	39	-	-	905
1975	642	9	-	79	44	30	-	804
5 Year Average	491	14	-	59	28	-	-	602

Set Net Year	335-10	335-20	335-30	335-40	335-50	Other	Total
1960	17	-	-	-	-	-	17
1961	10	5	-	-	-	-	15
1962	40	12	-	3	-	-	55
1963	20	7	-	-	-	-	27
1964	22	7	-	-	-	-	29
1965	24	-	-	-	-	-	24
1966	8	1	-	-	-	-	9
1967	13	3	-	1	-	-	17
1968	20	7	-	-	4	6 1/	43
1969	39	1	-	1	35	-	76
1970	38	3	-	-	35	-	76
1971	49	4	-	-	18	-	71
1972	38	4	-	-	1	-	43
1973	18	6	-	-	1	-	25
1974	54	9	-	-	7	-	70
1975	38	1	-	-	9	-	48
5 Year Average	39	5	-	-	12	-	57

Drift Net Year	335-10	335-20	335-30	335-40	335-50	Other	Total
1960	22	2	-	4	-	-	28
1961	133	9	-	17	-	-	159
1962	229	26	1	28	-	-	284
1963	97	7	-	32	-	-	136
1964	114	10	-	24	-	-	148
1965	186	5	-	22	-	-	213
1966	184	2	-	8	-	-	194
1967	227	2	-	10	-	-	239
1968	320	2	-	39	14	-	375
1969	332	2	-	65	42	-	441
1970	355	2	-	53	36	1 3/	447
1971	412	16	-	46	27	-	501
1972	416	11	-	53	18	-	498
1973	471	13	-	52	18	-	554
1974	712	15	-	87	39	-	853
1975	655	3	-	79	42	-	784
5 Year Average	473	11	-	58	28	-	571

1/ Includes six whitefish gill nets.
2/ Halibut longline fishing at Nunivak Island.

Appendix Table 3 Kuskokwim district commercial catches by drainage, 1960-1975

Kuskokwim River[1/]	King	Red	Coho	Pink	Chum	Total
1960	5,969	0	2,498	0		8,467
1961	18,918	0	5,044	0		23,962
1962	15,341	0	12,432	0		27,773
1963	12,016	0	15,660	0		27,676
1964	17,149	0	28,613	0		45,762
1965	21,989	0	12,191	0		34,180
1966	25,545	0	22,985	0		48,530
1967	29,986	0	56,313	0	148	86,447
1968	34,278	0	127,306	0	187	161,771
1969	43,997	322	83,765	0	7,165	135,249
1970	39,290	117	38,601	44	1,664	79,716
1971	40,274	2,606	5,253	0	68,914	117,047
1972	40,795	102	22,579	8	78,619	142,103
1973	32,838	369	130,876	33	148,746	312,862
1974	18,564	136	147,260	37	171,887	337,884
1975	22,135	4	84,120	5	184,171	290,435
5 Year Average	34,352	666	68,914	24	93,966	

Quinhagak (Kanektok River)[2/]	King	Red	Coho	Pink	Chum	Total
1960	0	5,649	3,000	0	0	8,649
1961	4,328	2,308	46	90	18,864	25,636
1962	5,526	10,313	0	4,340	45,707	65,886
1963	6,555	0	0	0	0	6,555
1964	4,081	13,422	379	939	707	19,528
1965	2,976	1,886	0	0	4,242	9,104
1966	278	1,030	0	268	2,610	4,186
1967	0	652	1,926	0	8,087	10,665
1968	8,879	5,884	21,511	75,818	19,497	131,589
1969	16,802	3,784	15,077	953	38,206	74,822
1970	18,629	5,393	16,850	15,195	46,556	102,623
1971	4,185	3,118	2,982	13	30,208	40,506
1972	15,880	3,286	376	1,878	17,247	38,667
1973	14,993	2,783	16,515	277	19,680	54,248
1974	8,704	19,510	10,979	43,642	15,298	98,133
1975	3,994	8,969	10,096	540	34,402	58,001
5 Year Average	12,478	6,818	9,540	12,201	25,798	

Goodnews Bay (Goodnews River)[3/]	King	Red	Coho	Pink	Chum	Total
1968			5,485			5,485
1969	3,978	6,256	11,631	298	5,006	27,169
1970	7,163	7,144	6,794	12,183	12,346	45,630
1971	477	330	1,771	0	301	2,879
1972	264	924	925	66	1,331	3,510
1973	3,543	2,072	5,017	324	15,781	26,737
1974	3,302	9,357	21,349	16,373	8,942	59,314
1975	2,149	9,063	17,547	418	6,583	35,760
5 Year Average	2,950	3,965	7,169	5,789	7,740	

1/ Includes subdistricts 335-10, 335-20 and 335-30. Commercial Fishing in 335-30 has been prohibited since 1966.
2/ Subdistrict 335-40.
3/ Subdistrict 335-50 and includes Chagvan Bay.

Appendix Table 4 Comparable commercial king salmon catch data, Kuskokwim district, 1960-1975

Total catch (king salmon season only)	Year	335-10	335-20	335-30	335-40	335-50	335-60	Total
	1960	2,927	1,231	1,811	0	0	0	5,969
	1961	15,820	1,551	1,547	4,328	0	0	23,246
	1962	13,306	2,035	0	5,526	0	0	20,867
	1963	9,095	2,921	0	6,555	0	0	18,571
	1964	15,754	1,395	0	4,081	0	0	21,230
	1965	21,452	537	0	2,976	0	0	24,965
	1966	25,212	333	0	278	0	0	25,823
	1967	29,371	615	0	0	0	0	29,986
	1968	33,452	826	0	8,879	0	0	43,157
	1969	43,144	853	0	16,802	3,971	7	64,777
	1970	37,827	1,463	0	18,629	7,163	0	65,082
	1971	35,421	2,439	0	3,546	477	0	41,883
	1972	37,699	1,755	0	15,180	148	0	54,770
	1973	28,194	2,244	0	12,568	2,420	0	45,426
	1974	17,611	953	0	8,704	3,302	0	30,570
	1975	18,625	1,319	0	1,587	1,904	0	23,435
	5 Year Average	31,350	1,771	0	11,725	2,702	0	47,546

Catch/boat hour (king salmon season only)[2/]	Year	335-10	335-20	335-30	335-40	335-50	335-60
	1960	0.55	1.28	2.79	-	-	-
	1961	0.98	1.03	1.22	0.87	-	-
	1962	0.93	1/	-	0.65	-	-
	1963	1.59	1.70	-	1.19	-	-
	1964	2.44	1.22	-	1/	-	-
	1965	1.59	0.98	-	0.81	-	-
	1966	1.38	1/	-	1/	-	-
	1967	1.24	1/	-	1/	-	-
	1968	1.09	2.30	-	1/	-	-
	1969	1.42	1.02	-	0.75	0.26	0.14
	1970	1.70	1.36	-	2.32	1.07	-
	1971	2.64[3/]	0.78[4/]	-	3.25[5/]	3.81[6/]	-
	1972	1.41	0.55	-	3.14	1.37	-
	1973	1.90	0.28	-	3.47	3.80	-
	1974	0.90	0.20	-	1.84	1.45	-
	1975	2.90	0.36	-	1.47	1.16	-

1/ Information not available.
2/ Must refer to daily catch data for exact duration of season.
3/ All 12-hour periods June 14-25.
4/ June 15-30.
5/ July 1-9.
6/ June 18-July 6.
7/ Chagvan Bay

Appendix Table 5 Commercial salmon pack by species in round weight (lbs.), Kuskokwim district, 1964-1975. 1/

	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
Fresh or frozen												
King	253,700	181,670	262,760	510,750	794,682	1,032,863	1,113,890	801,628	1,400,243	1,371,635	565,941	159,845
Red	77,850	12,450	6,180		36,480	25,351	68,116	30,635	4,319	37,816	179,768	103,215
Coho	128,500	79,240	154,000	374,000	1,090,690	322,254	453,125	64,457	152,832	883,966	1,245,132	670,598
Pink					303,270	3,413	90,703		6,442	2,092	246,134	2,830
Chum	10,040	25,870	17,270	940	146,230	249,007	367,715	678,173	631,781	1,252,607	1,220,496	1,350,936
Cured in tierces (No. of tierces)												
King	165,000(182)	231,430(237)	248,400(240)	321,841(233)	221,711(202)	167,500(189)	115,322(139)	117,150(142)				
Other cured												
King						67,000	949	3,614	6,150			
Red				3,588		38,273						
Coho						310,500						
Pink				48,264		1,103						
Chum						44,674						
Salmon roe (lbs. of finished product	20,250	2/	2/	55,350	2/	56,926	42,958	64,137	62,963	165,574	2/	43,110

1/ Pack represents type of processing when fish were shipped out of district.
2/ Information not available.

Appendix Table 6 Mean salmon weights and prices paid to fishermen, Kuskokwim district, 1964-1975.

Year	Mean weights-lbs(kgs) King	Coho	Red	Pink	Chum
1964	23.2 (10.5)	6.5 (3.0)	5.8 (2.6)		6.1 (2.8)
1965	21.7 9.9)	6.5 (3.0)	6.6 (3.0)		
1966	23.2 (10.5)	6.7 (3.0)			
1967	27.8 (12.6)	5.9 (2.7)	7.4 (3.4)		7.0 (3.2)
1968	23.8 (10.8)	7.2 (3.3)	6.2 (2.8)	4.0 (1.8)	7.9 (3.6)
1969	19.6 (8.9)	7.3 (3.3)	6.2 (2.8)	3.6 (1.6)	5.8 (2.6)
1970	18.9 (8.6)	7.3 (3.3)	5.4 (2.5)	3.3 (1.5)	6.1 (2.8)
1971	26.2 (11.9)	6.1 (2.8)	6.9[1] (3.1)	2/	6.4 (2.9)
1972	24.7 (11.2)	6.4 (2.9)	2/	2/	6.5 (3.0)
1973	26.7 (12.1)	5.8 (2.6)	2/	2/	6.8 (3.1)
1974	17.1 (7.7)	7.5 (3.4)	6.3 (2A)	4.1 (1.9)	6.8 (3.1)
1975	14.9 (6.8)	8.2 (3.7)	2/	2/	6.4 (2.9)

Year	Mean prices (per fish) King	Coho	Red	Pink	Chum
1964	$3.25	$ .35	$ .50	$	$
1965[1]/					
1966	3.00	.40	.50	.10	.10
1967	3.55	.52	.40		.25
1968	3.74	.67	.60	.20	.35
1969	3.80	.76	.91	.22	.43
1970	3.78	1.03	1.15	.26	.51
1971[3]/	4.53	.82	.71	2/	.50
1972	4.92	1.00	.88	.25	.54
1973	6.83	1.50	2.32	.53	1.28
1974	7.96	2.00	2.15	.93	1.71
1975	8.05	2.54	2/	2/	1.67

1/ Samples available for only two periods--7/1-2 and 7/5-6.
2/ Information unavailable.
3/ Information not available for 335-50 (Goodnews) only fished one day.

Appendix Table 7 Dollar value estimates of Kuskokwim district commercial fishery, 1964-1975 [1/]

Year	Gross Value of catch to fishermen	Wages earned [2/]	Total income to district	Wholesale value of pack [3/]	Tax revenues to state
1964	$ 83,030.00	$	$	$ 409,700.00	$ 6,100.00
1965	90,950.00			370,000.00	8,200.00
1966	87,466.00			406,500.00	8,100.00
1967	138,647.00	20,000.00	158,647.00	727,000.00	
1968	290,370.00	40,000.00+	330,370.00+	1,135,000.00	17,000.00
1969	297,233.00	60,435.00+	357,668.00+		
1970	362,470.00	127,327.00	489,797.00	1,300,000.00	20,000.00
1971	371,220.00	80,510.00	451,730.00	672,180.00	16,770.00
1972	360,727.00	86,895.00	447,622.00		
1973	827,735.00	150,000.00+	977,735.00	3,600,000.00	32,000.00
1974	1,056,042.00	150,000.00+	1,206,042.00		
1975	899,178.00	165,000.00+	1,064,178.00	2,000,000.00	25,000.00

1/ Information not available for wages earned during 1964-1966.
2/ Includes wages paid to tenderboat operators, processing plant employees in district.
3/ Based on type of processing when fish were shipped out of the district.

pendix Table 8 Total utilization of Kuskokwim River king salmon, 1960-1975.

Year	Commercial Catch 1/	Subsistence catch 2/	Total utilization
1960	5,969	20,931	26,900
1961	18,918	31,136	50,054
1962	15,341	14,656	29,997
1963	12,016	34,615	46,631
1964	17,149	29,017	46,166
1965	21,989	27,143	49,132
1966	25,545	49,606	75,151
1967	29,986	57,875	87,861
1968	34,278	30,230	64,508
1969	43,997	40,138	84,135
1970	39,290	69,219	108,509
1971	40,274	42,926	83,200
1972	40,795	40,145	80,940
1973	32,838	38,526	71,364
1974	18,564	26,665	45,229
1975	22,135	47,569	69,704
5 Year Average	34,352	43,496	77,848

1/ Subdistricts 335-10, 335-20 and 335-30.
2/ Catches are expanded and include all villages surveyed each year. Data includes a few villages not included in comparative catch tables.

Appendix Table 9. Comparative commercial king salmon catch data by fishing period during the king salmon season, Kuskokwim River (subdistrict 1, 335-10), 1965-1975.

Fishing periods	1965 Catch	1965 Boats [1]	1965 C.F.H. [2]	1966 Catch	1966 Boats	1966 C.F.H.	1967 Catch	1967 Boats	1967 C.F.H.	1968 Catch	1968 Boats	1968 C.F.H.	1969 Catch	1969 Boats	1969 C.F.H.
June															
1-2							2,280	150	0.63						
4-6							7,489	208	1.50				4,156	216	0.80
6-9	4,267						6,592	204	1.35	1,350	93	0.60	9,708	255	1.59
10-13	3,340						5,863	201	1.22	6,603	231	1.19	11,290	274	1.72
13-15	4,354			5,192	141	1.53	5,445	154	1.47	7,824	262	1.24	9,408	269	1.46
16-20	5,261			5,498	160	1.43	1,260	54	0.97	7,734	257	1.25	8,579	256	1.40
20-23	4,230			7,420	172	1.80	438	10	1.82	5,841	233	1.04			
23-25				4,461	159	1.17				4,099	205	0.83			
27-28				2,641	132	0.83									
Totals	21,452	135 [1]	1.59	25,212	210	1.38	29,367	233	1.25	33,451	303	1.09	43,141	329	1.42
Associated Data															
Fishermen hours	13,500			18,336			23,544			30,744			30,480		
Days open to fishing [3]	5			5			7			6			5		
Kuskokwim River breakup (Bethel)				June 1			May 6			May 14			May 6		
Kuskokwim River clear of ice							May 17			May 17			May 13		
First king salmon	May 31			June 1 (Kalskag)			May 20			May 26			May 23		
Smelt at Bethel	May 25			June 6			May 25								
First frost							Sept. 7								
Freeze-up at Bethel				Oct. 20			Oct. 19								

Fishing periods (1974)	1970 Catch	1970 Boats	1970 C.F.H.	1971 Catch	1971 Boats	1971 C.F.H.	1972 Catch	1972 Boats	1972 C.F.H.	1973 Catch	1973 Boats	1973 C.F.H.	1974 Catch	1974 Boats	1974 C.F.H.	1975 Catch	1975 Boats	1975 C.F.H.
June																		
4-6	3,045	172	0.74															
6-9	7,836	275	1.19							2,752	209	1.09						
10-13 (10-11)	13,485	320	1.76							7,419	348	1.78	4,384	422	0.9			
13-16 (13-14)	13,349	313	3.55 [4]	2,436	148	1.37	2,735	184	1.24	7,606	334	1.90	5,790	488	1.0	359	12	5.0
16-20 (17-18)				11,029	306	3.00	8,535	239	2.98	10,417	372	2.33	5,857	506	1.0	1,031	46	1.9
20-23				12,337	355	2.90	14,356	341	2.34							17,235	483	2.9
23-25				9,619	309	2.59	12,073	297	1.69									
27-28																		
Totals	37,715	361	1.70.	35,421	418	2.64	37,699	405	2.05	28,194	456	1.86	16,031	506	0.9	18,625	541	2.9
Associated Data																		
Fishermen hours	22,164			13,416			18,342			15,156			16,992			5,796		
Days open to fishing [3]	3 1/2			2			2 3/4			2			1 1/2			1 1/4		
Kuskokwim River breakup (Bethel)	May 12			May 24			May 23			May 14			May 7			May 19		
Kuskokwim River clear of ice	May 16			May 29			May 28			May 18			May 19			May 25		
First king salmon	May 21			June 6			June 5			May 27			May 23			May 26		
Smelt at Bethel	May 27			June 7			June 6			May 31			May 25			May 29		
First frost	Sept. 7			Sept. 7			Sept. 16			Aug. 13								
Freeze-up at Bethel	Oct. 18			Nov. 4			Nov. 3			Oct. 15								

1/ Number of fishermen not available by period for 1965.
2/ Catch per fisherman hours.
3/ One day is equivalent to 24 hours of fishing time.
4/ Open for only 12 hours.

Appendix Table 10 Total utilization of Kuskokwim River chum salmon, 1960-1975.

Year	Commercial Catch 1/	Subsistence Catch 2/	Total utilization
1960		327,297	327,297
1961		185,447	185,447
1962		165,626	165,626
1963		141,550	141,550
1964		189,660	189,660
1965		283,459	283,459
1966		174,660	174,660
1967	148	205,263	205,411
1968	187	260,023	260,210
1969	7,165	198,628	205,793
1970	1,664	245,550	247,214
1971	68,914	116,391	185,305
1972	78,619	120,316	198,935
1973	143,746	179,259	320,005
1974	171,887	277,170	449,057
1975	184,171	176,389	360,560
5 Year Average	92,966	187,737	280,103

1/ Subdistricts 335-10 and 335-20.
2/ Catches are expanded and include all villages surveyed each year, 335-10, 335-20 and 335-30.

Appendix Table 11 Comparative commercial chum salmon catch data by fishing period during the chum salmon season, Kuskokwim River, (subdistrict 1, 335-11) 1971-1975.

Fishing Periods	1971			1972			1973			1974			1975		
	Catch	Boats	C.F.H.1/	Catch	Boats	C.F.H.	Catch	Boats	C.F.H.	Catch	Boats	C.F.H.	Catch	Boats	C.F.H.
June 25-27							19,073	202	7.9	27,017	267	16.9			
June 28-30	11,385	150	6.3	9,863	87	9.4	47,258	250	7.9				31,219	279	18.6
July 1-3	8,949	111		19,084	115	13.8	21,410	242	7.4	55,356	380	12.1	35,525	360	15.9
July 4-6	17,672	104		19,839	101	16.8	31,056	212	12.2	27,211	282	8.0			
July 7-9	12,603	93					24,593	217	9.4	50,672	376	11.2	39,395	369	17.2
July 10-12	2,550	18		13,972	113	10.3							39,910	394	21.9
July 13-15	8,000	69		6,290	80	6.5							21,092	326	10.8
July 16-18										6,661	190	5.8			
July 19-21	5,989	71													
Total	67,149	216	9.1	69,048	176	11.6	143,390	341	8.7	166,917	467	11.0	167,139	539	17.0
Associated Data															
Fishermen Hours2/		7,392			5,952			16,476			15,198			9,228	
Days Open to Fishing3/		3.5			2.5			3.0			2.0			1.5	

1/ Catch per Fisherman Hour.
2/ Number of fishermen multiplied by hours open to fishing.
3/ One day is equivalent to 24-hours of fishing time.

Appendix · Comparative commercial coho salmon catch data by week, uskokwim River (subdistrict 1, 335-10), 1965-1975

Date	1965 Catch	1965 Fisher-men	1965 Fisher-man hrs.	1965 C.F.H. 1/	1966 Catch	1966 Fisher-men	1966 Fisher-man hrs.	1966 C.F.H.	1967 Catch	1967 Fisher-men	1967 Fisher-man hrs.	1967 C.F.H.	1968 Catch	1968 Fisher-men	1968 Fisher-man hrs.	1968 C.F.H.
Aug. 1-8	935		828	1.9					5,676	62	3,504	1.6	12,093	111	3,498	3.5
Aug. 9-15	6,508		2,718	2.4	5,439	61	2,796	1.9	24,296	119	10,728	2.3	46,707	198	12,432	3.8
Aug. 12-21	3,164		2,310	1.4	13,281	83	6,600	2.0	22,341	135	10,656	2.1	44,855	201	13,368	3.4
Aug. 19-29	1,093		564	1.9	2,955	70	3,480	0.8	1,397	32	1,344	1.0	19,161	124	6,378	3.0
Aug. 26-Sept. 3	491		144	3.4					1,287	26	1,128	1.1	3,047	54	2,670	1.1
Sept. 3-9													66	2	48	1.4
Totals	12,191		6,564	1.9	21,675	107	12,876	1.7	54,997	147	27,360	2.0	125,929	242	38,394	3.3

Date	1969 Catch	1969 Fisher-men	1969 Fisher-man hrs.	1969 C.F.H.	1970 Catch	1970 Fisher-men	1970 Fisher-man hrs.	1970 C.F.H.	1971 Catch	1971 Fisher-men	1971 Fisher-man hrs.	1971 C.F.H.	1972 Catch	1972 Fisher-men	1972 Fisher-man hrs.	1972 C.F.H.
Aug. 1-8	11,977	138	8,196	1.5	8,308	137	5,934	1.4	699	27	648	1.1	1,480	82	1,968	0.8
Aug. 9-15	36,104	202	12,720	2.8	14,834	222	12,870	1.2	1,670	46	4,416	0.4	9,706	183	17,568	0.6
Aug. 12-21	25,062	171	9,012	2.8	10,879	209	10,416	1.0	764	25	2,400	0.3	9,733	180	17,280	0.6
Aug. 19-29	8,528	131	6,438	1.3	2,930	115	4,494	0.7	2,048	29	2,784	0.7	1,423	61	5,856	0.2
Aug. 26-Sept. 3	266	6	270	1.0	349	22	768	0.5	72	5	480	0.2	237	28	2,688	0.1
Sept. 3-9	16	1	24	0.7												
Totals	81,953	231	36,660	2.2	37,300	266	34,482	1.1	5,253	83	10,728	0.5	22,579	245	45,360	0.5

Date	1973 Catch	1973 Fisher-men	1973 Fisher-man hrs.	1973 C.F.H.	1974 Catch	1974 Fisher-men	1974 Fisher-man hrs.	1974 C.F.H.	1975 Catch	1975 Fisher-men	1975 Fisher-man hrs.	1975 C.F.H.	Catch	Fisher-men	Fisher-man hrs.	C.F.H.
Aug. 1-8	12,605	198	2,376	5.3	9,576	267	3,444	2.8	2,357	142	852	2.8				
Aug. 9-15	62,928	351	33,696	1.9	59,090	444	31,968	1.9	12,500 2/	292	14,016	0.9				
Aug. 12-21	39,886	308	22,176	1.8	58,066	396	28,512	2.0	18,551	373	17,904	1.0				
Aug. 19-29	14,371	248	17,856	0.8	12,301	263	18,936	0.6	34,435	388	18,624	1.9				
Aug. 26-Sept. 3	867	16	1,152	0.8	5,360	107	7,704	0.7	16,277	270	12,960	1.3				
Sept. 3-9	136	4	222	0.6	430	25	1,815	0.2								
Totals	130,793	411	77,478	1.7	144,823	516	92,379	1.2	84,120	531	64,356	1.3				

1/ Catch per fisherman hours.

2/ 8/4-6.

Appendix Table 13 Comparative Kuskokwim River king salmon subsistence catches by village, 1960-1975.

Village	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Kwigillingok, Kipnuk, Kongiganak	250	283	54	229	414	0[1]	205	957	70	385	1,111
Eek	1,474[3]	2,238[3]	1,060[3]	2,697[3]	1,857	2,737	2,872	4,375	2,760	2,037	2,065
Tuntutuliak	226	2,226	842	2,853	1,826	1,978	3,061	3,338	2,026	2,195	3,558
Kasigluk	135	1,215	127	1,302	4/	513	1,875	2,766	1,360	2,888	3,931
Nunapitchuk	683	2,042	848	1,874	636	490	2,875	1,926	1,360	2,279	4,680
Atmauthluak[6]											1,205
Napakiak	1,830	2,573	2,191	3,148	2,677	1,670	3,592	3,922	2,317	3,546	4,960
Oscarville	1,968	282	75	309	339	678	301	1,327	393	457	542
Napaskiak	536	1,258	759	1,569	2,201	1,412	2,935	3,091	1,647	2,227	3,446
Bethel	1,923	4,150	1,378	7,019	4,114	3,342	7,604	11,772	4,900	7,472	17,026
Kwethluk	2,692	3,763	2,329	5,050	3,262	4,538	6,135	6,889	3,549	3,167	7,932
Akiakchak	1,626	3,052	1,800	2,533	3,488	3,952	4,957	5,543	3,415	2,602	7,022
Akiak	1,865	3,159	906	2,869	2,495	1,774	3,941	3,790	1,332	1,275	3,290
Tuluksak	737	1,486	493	1,295	572	1,019	1,559	1,710	1,048	1,131	1,995
Lower Kalskag	961	571	805	2,661	710	841	1,918	1,733	1,463	2,083	2,146
Upper Kalskag	667	1,049	7/	7/	1,143	719	1,333	1,699	1,404	1,623	734
Aniak	1,057	688	185	602	1,104	494	2,002	1,415	467	1,406	2,136
Chuathbaluk	64	54	10	30	74	29	139	217	40	180	219
Napamute	20	16	44	52	134	2	78	60	100	19	22
Crooked Creek	747	518	561	859	1,358	363	1,249	638	77	541	684
Georgetown	10/	10/	10/	10/	10/	10/	12	10/	10/	9	2
Red Devil	10/	40	144	228	314	10/	182	10/	111	142	232
Sleetmute	465	222	9/	9/	9/	491	149	343	200	267	161
Stony River	435	25	31	67	299	101	632	364	191	2,187	105
Totals	20,361	30,910	14,642	37,246	29,017	27,143	49,606	57,875	30,230	40,138	69,204

Village	1971	1972	1973	1974	1960-1973 Total	1960-1973 Average	1975	1960-1974 Total	1960-1974 Average
Kwigillingok, Kipnuk, Kongiganak	241	10	75	10/	4,284	330	10/	4,284	330
Eek	1,882	1,969	1,981	2,356	32,004	2,286	2,110	34,114	2,274
Tuntutuliak	1,841	3,214	2,859	1,577	32,043	2,288	3,492	35,535	2,369
Kasigluk	1,645	1,292	1,864	1,411	20,913	1,494	1,713	22,626	1,508
Nunapitchuk	1,978	2,496	2,663	1,165	26,830	1,916	2,092	28,922	1,928
Atmauthluak 6/	548	864	1,106	382	3,723	931	1,042	4,765	953
Napakiak	1,868	2,009	1,763	1,224	38,066	2,719	2,864	40,930	2,729
Oscarville	570	196	586	180	8,023	573	891	8,914	594
Napaskiak	1,916	1,578	2,048	900	26,623	1,902	2,303	28,926	1,928
Bethel	8,731	8,371	8,898	4,631	96,700	6,907	11,688	108,388	7,226
Kwethluk	5,564	5,137	3,444	2,694	63,471	4,534	3,179	66,650	4,443
Akiakchak	4,818	3,872	2,592	1,726	51,272	3,662	3,534	54,806	3,654
Akiak	2,688	1,899	1,895	1,292	33,178	2,370	2,837	36,015	2,401
Tuluksak	1,280	1,318	1,322	883	16,965	1,212	1,338	18,303	1,220
Lower Kalskag	2,355	2,604	1,309	1,586	22,160	1,583	2,755	24,915	1,661
Upper Kalskag	601	401	938	463	12,311	1,026	1,752	14,063	1,082
Aniak	1,076	2,105	1,030	1,952	16,879	1,206	1,391	18,278	1,218
Chuathbaluk	179	261	942	674	2,438	174	594	3,032	202
Napamute	17	20	13	6	597	43	226	823	55
Crooked Creek	291	183	269	650	8,328	595	238	8,566	571
Georgetown	0	0	0	9/	23	5	10/	23	5
Red Devil	135	182	138	205	1,848	168	623	2,471	206
Sleetmute	181	69	504	269	3,070	279	256	3,326	277
Stony River	2,521[11]	95	287	439	7,340	524	861	8,201	547
Totals	42,926	40,145	38,526	26,665		38,727	47,569		39,381

1/ Included with other villages.
2/ Does not include 1965.
3/ Estimates based on catch data through 1969.
4/ Included with Eek.
5/ Does not include 1964.
6/ New village of Atmauthluak segregated in 1970 from parent village of Nunapitchuk.
7/ Included with Lower Kalskag.
8/ Does not include 1962 and 1963.
9/ Included with Red Devil.
10/ Data not available.
11/ Includes Lime Village.

ppendix Table 14. Comparative Kuskokwim River "other salmon" subsistence catches by village, 1960-1975.[1/][2/]

illage	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1960-1973 Total	1960-1973 Average	1975	1960-1974 Total	1960-[illegible] Average
...ok, Kongiganak, Kwigillingok	1,430	3,279	1,990	2,562	2,323	0	680	2,846	2,800	2,481	3,937	1,110	1,284	807	9/	27,529	1,966	9/	27,529	1,966
ek	4,094 4/	2,321 4/	2,072 4/	1,771 4/	3,151	2,898	1,324	1,922	3,503	3,436	4,856	2,213	783	2,401	4,227	36,744	2,625	2,754	39,498	2,633
...ntutuliak	4,101	8,526	9,692	6,791	8,421	18,993	9,747	11,531	14,090	17,462	10,600	9,964	11,103	13,572	28,321	154,594	11,042	7,429	162,023	10,801
...sigluk	1,400	3,657	1,705	1,020	5/	4,041	3,058	2,309	4,311	3,308	5,731	2,043	1,934	6,090	6,773	40,607	3,124	3,708	44,315	3,153
...napitchuk	2,743	4,868	7,474	2,462	1,171	4,251	4,145	6,278	7,731	6,934	11,412	3,375	5,600	7,663	12,498	76,107	5,436	5,447	81,554	5,437
...mautluak											1,191	1,197	947	2,818	4,585	6,153	1,538	2,524	8,677	575
...pakiak	19,868	5,789	6,167	3,711	12,312	12,928	9,275	12,685	12,700	12,390	16,371	4,427	5,191	8,461	21,494	142,295	10,164	11,630	153,925	10,262
...carville	3,948	1,680	1,723	1,025	487	8,010	407	2,580	2,104	2,743	4,669	1,675	498	3,081	5,617	34,630	2,474	3,237	37,867	2,524
...paskiak	5,199	4,286	5,546	3,584	6,275	26,206	8,743	8,585	12,409	11,655	11,169	7,039	8,858	8,478	20,467	128,032	9,145	12,930	140,962	9,397
...thel	12,972	12,845	8,470	8,623	15,623	19,099	14,011	14,055	28,603	14,613	33,475	9,905	16,885	33,930	34,892	243,109	17,365	25,808	268,917	17,934
...ethluk	32,975	21,106	22,788	13,188	19,186	37,780	18,707	23,872	36,645	23,462	27,702	13,941	11,721	19,565	39,747	323,083	23,078	19,433	342,271	22,813
...iachak	15,932	12,518	10,521	6,725	10,096	25,138	15,049	13,584	19,461	10,306	29,776	12,298	9,266	9,864	15,108	200,534	14,324	14,008	214,542	14,303
...iak	13,061	8,205	6,551	8,478	9,659	12,297	10,622	9,332	13,775	9,054	13,003	9,264	5,108	6,118	18,434	135,327	9,666	18,890	154,217	10,281
...luksak	19,261	7,928	8,526	10,289	9,777	12,820	11,670	8,898	11,114	6,058	7,626	5,115	5,145	5,946	13,261	130,173	9,298	7,819	137,992	9,199
...wer Kalskag	11,563	7,764	16,478	23,249	9,472	21,906	10,346	16,018	8,114	8,468	11,158	3,509	3,490	2,873	12,265	154,408	11,029	9,523	164,031	10,949
...per Kalskag	38,398	27,149	7/	7/	11,391	11,970	6,236	8,364	9,733	9,413	5,309	3,530	1,460	5,607	9,631	138,560	11,547	6,904	143,464	11,190
...iak	36,673	15,935	10,120	10,608	17,874	11,353	12,484	16,788	17,341	15,127	10,030	4,933	5,243	13,547	9,305	198,056	14,147	9,597	207,653	13,844
...uathbaluk	22,370	2,922	3,784	2,629	5,059	6,507	5,625	7,249	11,588	7,523	10,971	5,632	8,509	14,171	4,287	114,539	8,181	561	115,100	7,673
...paimute	11,517	6,235	3,898	5,192	4,873	704	3,704	5,750	1,774	1,453	1,224	1,862	4,645	3,451	76	155,782	11,127	226	156,008	10,401
...ooked Creek	41,263	17,558	27,259	23,166	32,550	18,986	19,467	14,365	12,704	6,810	9,216	3,094	3,658	1,981	4,954	232,077	16,577	2,461	234,538	15,536
...orgetown	9/	9/	9/	9/	9/	9/	70	9/	2,030	3,664	800	0	0	10	9/	6,574	1,094	9/	6,574	1,094
...d Devil	9/	1,359	9,007	5,367	5,706	9/	2,746	9/	2,400	1,130	2,454	1,067	1,695	2,782	2,688	35,704	3,246	4,481	40,185	3,349
...eetmute	17,259	6,884	10/	10/	10/	11,707	2,611	6,875	11,218	8,258	4,464	3,203	4,293	2,168	4,212	78,940	7,176	5,761	84,701	7,058
...ony River	11,750	2,642	1,855	1,110	4,254	15,865	3,933	11,377	13,875	12,080	8,407	5,995 11/	3,000	3,875	4,328	100,018	7,144	5,202	105,220	7,015
...tal	327,257	185,447	165,626	141,550	189,660	283,459	174,660	205,263	260,023	198,628	245,550	116,391	120,316	179,259	277,170		212,613	176,389		2[illegible]9,555

1/ Catches include a majority of chum salmon but include small numbers of red, coho, pink and small king salmon.
2/ 1965 to 1972 catches do not include late coho salmon catches.
3/ Does not include 1965.
4/ Estimate based on catch data through 1970.
5/ Included with Eek.
6/ Does not include 1964.
7/ Included with Lower Kalskag.
8/ Does not include 1962 and 1963.
9/ Data not available.
10/ Included with Red Devil.
11/ Includes Lime Village.

Appendix Table 15 Comparative subsistence fishing data between families owning and not owning snowmachines, Kuskokwim River, 1967-1975.1/

Year	Families	People	Dogs	Snow-machines	Average per family					Percent families with snowmachines
					People	Dogs	Snow-machines	Kings	Other Salmon	
1967										
With snowmachine	59	410	288	63	6.95	4.88	1.07	143	355	14
Without snowmachine	359	2,264	1,963	0	6.31	5.47	0	101	404	
1968										
With snowmachine	159	1,100	808	182	6.92	5.08	1.14	70	382	30
Without snowmachine	374	2,247	2,052	0	6.01	5.49	0	51	493	
1969										
With snowmachine	158	1,097	876	189	6.94	5.54	1.20	78	306	45
Without snowmachine	191	1,208	1,173	0	6.32	6.14	0	71	425	
1970										
With snowmachine	287	1,962	1,413	375	6.84	4.92	1.31	121	380	58
Without snowmachine	212	1,201	972	0	5.66	4.58	0	87	413	
1971										
With snowmachine	361	2,459	1,504	494	6.79	4.16	1.37	89	243	74
Without snowmachine	128	734	601	0	5.73	4.70	0	84	278	
1972										
With snowmachine	278	2,096	949	385	7.54	3.41	1.38	76	220	77
Without snowmachine	85	508	328	0	5.98	3.86	0	48	247	
1973										
With snowmachine	343	2,246	1,375	506	6.55	4.00	1.48	79	362	81
Without snowmachine	81	429	283	0	5.15	3.49	0	47	254	
1974										
With snowmachine	337	2,153	1,339	491	6.39	3.97	1.46	47	495	88
Without snowmachine	68	350	158	0	5.15	2.32	0	29	342	
1975										
With snowmachine	313	2,029	1,252	482	6.55	4.00	1.54	79	309	84
Without snowmachine	59	313	126	0	5.30	2.13	0	62	301	

1/ Unexpanded data.

Appendix Table 16 Comparative Kuskokwim River subsistence fishery data, 1960-1975 4/

Year	Fishing families surveyed	Mean numbers per fishing family					
		People	Dogs	Snow-machines 1/	King Salmon	Other salmon 3/	Fishwheels
1960	247	5.89	6.66		60	1,074	2/
1961	342	6.02	6.33		39	453	.19
1962	349	6.50	6.30		79	470	.18
1963	405	6.14	5.29		87	351	.11
1964	394	6.33	5.44		70	454	.10
1965	332	5.95	5.45		64	669	.08
1966	492	5.91	4.49		91	320	.06
1967	472	6.36	5.22	.18	106	375	.06
1968	567	6.23	5.31	.35	53	447	.06
1969	376	6.49	5.51	.53	78	385	.05
1970	514	6.33	4.65	.75	108	384	.02
1971	488	6.53	4.30	1.01	88	238	.01
1972	576	6.78	3.08	1.00	51	166	.02
1973	408	6.55	3.84	1.48	81	356	.02
1974	596	6.24	3.61	1.12	45	466	.02
1975	437	6.41	3.99	1.35	79	310	.02

1/ Snowmachine count started in 1967.
2/ Information not available.
3/ Does not include coho salmon.
4/ Unexpanded data.

Appendix Table 17 Comparative Kuskokwim River drainage king salmon escapement counts.[1/2/]

Kwethluk River				Kisaralik River			
Year	Estimated Count	Area Surveyed[3/]	Survey Rating	Year	Estimated Count	Area Surveyed	Survey Rating
1960	1,320	Upper 40 miles	?	1960	1,104	Entire	Fair
1962	248	Entire	Poor	1962	327	Entire	Poor
1966	516	Upper 35 miles	Fair	1965	194	Below canyon	Poor
1968	800	Entire	Fair	1966	204	Upper 60 miles	Poor
1972	68	Upper 20 miles	Poor	1968	487	Upper river	Fair
1974	88	Upper 30 miles	Poor	1970	531	Airstrip to Quicksilver Cr.	Fair
1975	Few	Lower 40 miles	Poor	1973	152	Airstrip to 1 mi. above falls	Fair
				1974	4	Airstrip to 30 mi. upstream	Poor
				1975	129	Entire	Poor/F

Aniak River[4/]				Aniak River (above Salmon River)			
Year	Estimated Count	Area Surveyed	Survey Rating	Year	Estimated Count	Area Surveyed	Survey Rating
1960	1,881	Entire	Fair	1966	485	Salmon R. to lake	Fair
1961	497	Entire	Fair	1967	758	Salmon R. to lake	Poor
1962	925	Entire	Fair	1968	783	Salmon R. to lake	Good
1965	646	Mile 20 to lake	Poor	1969	537	Salmon R. to lake	--
1966	2,184	Buckstock R. to lake	Fair	1970	592	Salmon R. to Waterboot Cr.	Fair
1968	1,420	Buckstock to Kipchuk River	Fair	1971	144	Waterboot Creek to Aniak Lake	Poor
1970	1,231	20 mi. below Salmon R. to Waterboot Creek	Fair	1972	93	Salmon R. to lake	Poor
				1973	200	Salmon R. to lake	Poor
1974	196	Entire	Poor	1974	57	Salmon to lake	Poor
1975	202	Entire	Fair	1975	145	Salmon to lake	Fair

Salmon River				Kipchuk River			
Year	Estimated Count	Area Surveyed	Survey Rating	Year	Estimated Count	Area Surveyed	Survey Rating
1960	223	Entire	Good	1960	513	Entire	Good
1966	141	Lower 25 miles	Poor	1966	491	Lower 22 miles	Good
1970	381	Lower 25 miles	Fair	1967	200	Lower 25 miles	Poor
1972	43	Entire	Poor	1968	319	?	Fair
1973	100	Mouth to Cripple Cr.	Poor	1970	821	Mouth-Cripple Creek	Fair
1974	35	Entire	Good	1974	73	Entire	Good
1975	32	Entire	Fair	1975	94	Entire	Fair

Chukowan River				Kogrukluk River			
Year	Estimated Count	Area Surveyed	Survey Rating	Year	Tower Count	Aerial Survey Count	Area Surveyed	Survey Rating
1966	986	Mouth-Gemuk River	Good	1961		214	Entire	Fair
1968	1,260	Mouth-Gemuk River	Fair	1966		1,645	Entire	Good
1970	1,118	Mouth-Gemuk River	Good	1967		1,033	Entire	Poor
1972	163	Mouth-Gemuk River	Poor	1968		2,180	Entire	Fair
1973	229	Mouth-Gemuk River	Fair	1969	2,980	-	-	-
				1970	3,868[5/]	1,598	Entire	Fair
1975	667	Mouth-Gemuk River	Fair	1971	42[5/]	636	Headwater to 15 mi above mouth	Poor
				1972	1,934	476	Entire	Fair
				1973	1,725	610	Entire	Poor
				1974	3,724			
				1975	1,970	1,062	Entire	Fair

1/ All counts are from aerial surveys, except tower counts which are in parenthesis.
2/ Aerial survey counts were made only in main stem of each river listed.
3/ "Entire" usually does not include several miles of the lower sections of streams where turbid water conditions prevent observation of fish.
4/ Includes Aniak River above Salmon River.
5/ Weir count.

Appendix Table 18 Quinhagak subsistence fishery data, 1967-1975. 1/

Year	Total Fishing Families	Averages Per Fishing Family							
		People	Dogs	Snow-machines	King Salmon	Dog Salmon	Coho Salmon	8 1/2" Nets	5 1/2" Nets
1967	19	6.43	4.00		71	231		.86	1.00
1968	46	5.59	4.07	.28	88	234	380	.48	.54
1969	59	5.38	3.41	.46	27	29	179	.72	.28
1970	46	6.02	2.76	.74	47	110		.64	.69
1971	41	5.83	2.37	.73	55	87	36	.54	.73
1972	54	6.41	2.30	.80	56	116	9	.44	1.00
1973	44	5.80	2.07	.98	61	98	83	1.02	.98
1974	47	5.53	2.31	1.17	46	78	87	.63	.74
1975	46	5.86	1.85	1.13	71	88		1.00	.93

1/ Expanded data

Attachment 1

Subsistence Roe Report

SALE OF ROE FROM SUBSISTENCE-CAUGHT SALMON IN THE ARCTIC-YUKON-KUSKOKWIM REGION, 1975

Background

In years past when native people were experiencing a pure subsistence type of livelihood, all or nearly all portions of fish captured were probably utilized. Salmon roe was consumed by people with probably greater quantities fed to their sled dogs. Due to recent changes in employment and welfare opportunities, there has been a gradual decline in the dependence upon subsistence fishing. Replacement of the sled dog with the snowmachine has had a very significant effect in regards to utilization of chum salmon and roe. From reports received from various village residents, much of the roe taken from subsistence caught salmon in recent years was discarded. The amount of salmon roe discarded or not utilized has never been documented by the Department. There is no question that wastage of salmon roe was and is occurring, but the Department has been unable to quantify the amount.

There are many problems involving the documentation of the amount of roe utilized and/or wasted in the subsistence fishery. It is believed that some native fishermen continued to store or dry their salmon roe with the intention of some future use, but significant amounts may never be used. With regards to wastage, most fishermen would be hard pressed to quantify the amount of roe retrieved from their salmon catch, the amount consumed or the amount wasted.

Beginning with the 1973 season, nearly all commercial salmon buyers in the Kuskokwim area and a few buyers in the upper Yukon area augmented their roe production to some extent from subsistence channels. It was estimated, for example, that illegal sales of subsistence roe in 1973 represented 10-15 percent of the reported com-

mercial roe production in the Kuskokwim area. Illegal sale of salmon roe from subsistence caught salmon was not a problem in the remainder of the region during 1973. Approximately 422,000 pounds of processed salmon roe was reported as commercial production in 1973.

Three different bills were introduced in the 1974 Legislature that involved legalization of the sale of subsistence caught salmon roe. None of these bills passed as they remained in committee through adjournment.

In the spring of 1974 it was apparent that several buyers were gearing up to purchase even larger amounts of subsistence roe. Both the Departments of Fish and Game and Public Safety assigned additional personnel for fishery patrol in an attempt to minimize the illegal sale of subsistence roe. The major thrust of the enforcement program was increased surveillance of buying and processing stations. News releases and notices were issued to clarify existing regulations.

An emergency regulation with an effective date of June 15, 1974 was issued by the Commissioner which allowed the sale of subsistence salmon roe in the A-Y-K region. Issuance of the emergency regulation, in effect for 120 days, was coincidental with the beginning of the salmon runs.

In 1974, a total of 182,428 pounds of subsistence salmon roe was sold, bringing fishermen an estimated $216,940 in earnings. The estimated first wholesale value of this production was $550,000. A subsistence harvest of 432,766 salmon was derived from the volume of roe sold (Table 1).

By comparison, commercial roe production for 1974 was estimated at approximately 305,000 pounds.

In 1974 the majority of the subsistence roe came from the Kus-

kokwim area (73 percent by weight) and the upper Yukon area (26 percent by weight). A small amount was sold in the vicinity of Nome in the Norton Sound area. No sales of subsistence roe were recorded in the following locations: (1) Norton Sound area (except Nome); (2) Kotzebue area including Kobuk and Noatak Rivers; (3) Upper Kuskokwim River drainage upstream from Kalskag; (4) Koyukuk, Chandalar and Porcupine drainages of the Yukon River; (5) Upper Yukon River drainage upstream from Stevens Village.

Kuskokwim and Yukon River subsistence chum salmon catches were significantly larger than recent year levels. Both the large salmon run and increased effort due to the opportunity to sell roe were probably factors contributing to the large subsistence harvests in 1974.

Numerous reports were received in 1974 of discarded carcasses but the staff was able to document only one such case involving 300-500 carcasses. Roe from a single chum salmon was worth up to $0.95 compared to $1.25-$1.50 for the carcass when sold in the usual commercial channels. Therefore the inducement to sell roe and discard the carcass was always present. There was no "wanton waste" provision for either commercial or subsistence fishing and violators could not be cited or prosecuted.

Another more subtle form of wastage was brought to the Department's attention by some fishermen. Although the vast majority of the fishermen preserved their subsistence catches, the magnitude of some catches probably prevented people from using all the fish before the beginning of the 1975 fishing season when the remaining fish were likely discarded.

A-Y-K Regional Summary, 1975 Season

During the 1975 Legislature session a bill was introduced by Senator

George Hohman of Bethel to permit the sale of subsistence caught salmon roe in the A-Y-K region. After several revisions the legislation was passed and approved by the Governor on May 29, 1975. The act became effective the next day and contained the following key provisions:

1) The legislation will expire on January 1, 1977 (sales after this date will presumably depend on legislative review and action).
2) No person may purchase or trade for subsistence salmon roe unless he possesses an annual permit issued by the Commissioner.
3) The Commissioner may close any or all areas to the sale of subsistence salmon roe if the waste of carcasses, damage to stocks or circumvention of management programs is occurring. A separate section defining the "waste of salmon" and penalties for violators was included in the Act.
4) If the subsistence catch in an area exceeds or is likely to exceed by 10 percent the 1974 subsistence catch for that area, the Commissioner shall close that area to the sale of subsistence salmon roe.
5) The Board may adopt regulations necessary to allow the sale of salmon roe based on traditional subsistence needs coupled with the maintenance of salmon stocks on a sustained yield basis.

In order to administer the legislation, the Commissioner issued an emergency regulation in June, 1975 which controlled the purchase and sale of subsistence caught salmon roe in portions of the A-Y-K region.

Contents of this emergency regulation were similar to recommendations

made by the staff after the 1974 season. The key elements of the emergency regulation were as follows:

1) Permits are required of all persons or companies purchasing or processing subsistence-caught roe.
2) Revocation of permits upon violations of permit terms, regulations or laws.
3) Strict reporting requirements in regard to amount of subsistence caught roe in order that estimates of subsistence harvests can be made.
4) Prohibition of subsistence-caught roe sales when subsistence harvests are likely to exceed traditional personal use needs.
5) Prohibition of subsistence-caught roe sales in districts and subdistricts where salmon runs are especially vulnerable to overharvest or where subsistence catches in the past have been negligible.

A copy of a sample permit form used in 1975 is attached as Appendix 4.

Prior to the 1975 fishing season roe quotas were computed based usually on the average 1970-1974 subsistence catch by species, known sex ratios and average roe weights. Sex ratios and roe weights were determined from previous data or were obtained where feasible by periodically sampling catches in-season at processing stations. When the predetermined roe quotas were obtained in any particular subdistrict the Department probibited the sale of subsistence salmon roe by emergency order.

In 1975, a total of 155,900 pounds of subsistence salmon roe was sold. This compares to 182,400 pounds sold in 1974. Fishermen received an estimated $208,400 in earnings. The estimated first wholesale value of this production was $457,000. A subsistence harvest of 361,300 salmon was derived from the volume of roe sold (Table 1).

Commercial roe production for 1975 is not yet available.

Similar to the previous season, the majority of the 1975 sales was made in the lower Kuskokwim River with lesser amounts taken in the middle and upper sections of the Yukon River. Roe sales also occurred to a minor extent in Quinhagak, Goodnews Bay, Hooper Bay and the lower Yukon River. No sales of subsistence roe were recorded in the Norton Sound or Kotzebue areas.

Discussion

Traditionally, the subsistence salmon fishery was naturally limited by the personal food requirements and the numbers of salmon that could be handled in a day and hung to dry or smoke during the season. These restraints do not apply to a commercial fishery where the profit motive is paramount.

A possible consequence resulting from the authorization of the sale of subsistence caught salmon roe is that the concept and future direction of subsistence fishing may be permanently altered. Present subsistence fishing regulations in the A-Y-K Region are quite liberal which is in recognition of the traditional personal needs of the large native population. If the sale of subsistence caught salmon roe is permanently authorized after the 1976 fishing season and subsistence fishermen begin making harvests in excess of recent traditional levels, then a new management strategy must be developed. There are two main options to pursue in this event, i.e., restricting the subsistence harvest or restricting the commercial harvest to bring the total harvest in line with optimum sustained yield. If subsistence fishing requires further restriction, many persons with genuine subsistence needs will be adversely affected by others who are much less dependent on a subsistence livelihood, but continue to fish mainly for the purpose of selling roe. This

concern has been expressed to Department personnel on occasion by several long term residents, who still fully utilized their catch for traditional use. These persons are opposed to the sale of salmon because they feel it threatens their traditional life style.

Another consideration is that the monetary value of such a fishery in terms of local economy should greatly exceed the cost of establishing and monitoring the fishery. In some areas the reverse will be true.

The effect of allowing the sale of subsistence roe on the 1975 subsistence fishery remains unclear. Preliminary subsistence salmon harvests recorded to date are above average in magnitude. In the staff's judgement the greatest influencing factor was the abundance of chum salmon with only minimal impact stemming from increased effort as a result of the ability to sell roe.

Overall, in the A-Y-K region the sale of subsistence salmon roe during the 1975 season was considered successful especially when compared to the 1974 season which was essentially unregulated. Reports of the wastage of salmon were negligible during 1975 in contrast to previous seasons when such reports were widespread. Processors generally cooperated with the Department by providing reliable and timely roe harvest data. The relatively few documented violations and close cooperation received from fishery participants in 1975 were undoubtedly influenced by the restrictions contained in the newly enacted legislation, which is in effect for a two year trial period, and the emergency regulation.

In 1975, the Board of Fisheries passed regulations which should help provide necessary regulation to control the purchase and sale of subsistence caught salmon roe in accordance with AS 16.05.827 in portions of the

Arctic-Yukon-Kuskokwim region during 1976. These regulations are similar to the contents of the 1975 emergency regulation which was in effect for 120 days and expired in October.

Due to the size of the drainages involved, the staff was not able to adequately monitor roe sales and fisheries in the middle section of the Yukon River and in the upper Kuskokwim River. The Department has submitted a budget request for consideration by the 1976 Legislature, that would provide the necessary funds to hire the required number of seasonal employees to ensure adequate coverage.

Kuskokwim Area, 1975 Season

Table 2 shows volumes of subsistence roe sold throughout the area. Estimates of the subsistence harvests were derived from these sales and the information is included in the table.

Portions of the Kuskokwim area were opened to subsistence salmon roe sales on June 14, however, little roe was sold due to the effects of a commercial fishermen's boycott. Subsistence king salmon sales increased until a peak of 11,000 pounds was reached during the week of June 23-29. Subsistence king salmon roe sales were terminated throughout the area by June 29 by emergency orders after more than 24,399 pounds, representing an estimated 31,905 fish, were sold. A total of 57,711 pounds of subsistence chum salmon roe, representing an estimated 184,246 fish, were sold and sales were terminated throughout the area by emergency order by July 14.

An estimated 2,500 sales of subsistence roe were made by approximately 1,200 persons. The vast majority of the sales occurred in subdistrict 1 (lower Kuskokwim River) with lesser amounts occurring in subdistrict 2 (middle Kuskokwim River), subdistrict 4 (Quinhagak), subdistrict 5 (Goodnews Bay) and Hooper Bay.

Roe prices ranged from $1.25 to $1.50 per pound. The estimated value of the subsistence roe pack to the fishermen was $123,545. for an average of $103. per fisherman. The first wholesale value of the subsistence roe was estimated at $247,000.

Numbers of salmon were "back-calculated" from reported subsistence roe poundages. Therefore, estimates of the subsistence harvest were possible and were available for in-season management purposes. These derived catches represent minimum figures as all roe from subsistence caught salmon was probably not sold. These calculations indicated that a minimum of 31,905 king and 184,246 chum salmon were captured with the vast majority taken in the Kuskokwim River. These estimates compare favorably with information from the Department's annual subsistence survey of the fishery. Preliminary analysis of subsistence roe information indicates subsistence fishing effort terminated almost coincindentally with the closure of chum salmon roe sales. This tends to indicate the presence of a "roe fishery". In other words, many of the fishermen were participating in the subsistence fishing only in order to sell salmon roe and once roe sales were terminated, they quit fishing because they were not dependent on utilizing salmon for personal needs.

Due in large part to stringent regulations governing subsistence roe sales and to the effects of the two-year "trial period" imposed by the Legislature, the program proceeded very smoothly, especially when compared to the unregulated 1974 program. A massive I & E program by resident biologists aided immeasurable in preventing fish wastage. The very success of the program in 1975 points out the wisdom of present management practices and the need for continued regulatory controls.

Yukon Area, 1975 Season

Table 3 presents subsistence salmon roe sales data for each subdistrict. There were 2,467 pounds of king salmon roe and 71,328 pounds of chum salmon roe sold by 225 subsistence fishermen. Of these, 128 were licensed commercial fishermen who sold subsistence salmon roe during and after the close of commercial fishing seasons in the District. A total of 4,803 pounds of roe was extracted from commercially caught king salmon and sold separately by commercial fishermen in subdistricts 5 and 6.

The documented sale of 73,795 pounds of subsistence salmon roe earned fishermen an approximate total of $84,900 or an average of $377 per fishermen. A total of 12 buyers purchased subsistence roe which had an estimated first wholesale value of $210,000.

There were no sales of subsistence roe in subdistrict 1 and owing to the general character of fishing in the lower river, relatively small amounts were sold in subdistricts 2 and 3. The greatest amounts of subsistence salmon roe were produced in the middle river area (subdistrict 4), which also had the largest number of participants.

Prior to the fishing season, subsistence salmon roe quotas were calculated based on the previous 5 year average subsistence catch level by species, average roe weights and assumed sex ratios for each subdistrict. Once these quotas were attained subsistence roe sales in each subdistrict were closed.

Sales of subsistence king salmon roe did not reach subdistrict quota levels, nor were sales of chum salmon roe terminated in subdistricts 1 and 2. Subdistrict 3 subsistence chum salmon roe sales were terminated on July 21, one week prior to the opening of the fall season. Subdistrict 4 was closed to the sale of subsistence chum roe on August 1, three weeks prior to the close of the commer-

cial fishery. The subsistence chum roe fisheries in subdistrict 5 and 6 were closed on September 18, and 25, respectively.

It is difficult to assess the impact of allowing the sale of subsistence salmon roe on the Yukon River fishery. Preliminary 1975 figures indicate that in excess of 255,000 salmon were taken for subsistence purposes. The large summer and fall chum salmon runs and the sale of subsistence salmon roe were probably both contributing factors to the large subsistence harvest in 1975.

Persistent, but undocumented rumors of fish being taken for roe only and the carcasses being discarded in the upper river subdistricts were received. It is likely that some individuals engaging in the sale of subsistence roe captured salmon far in excess of their needs.

Table 1. Subsistence salmon roe sales, A-Y-K Region, 1974 and 1975

	1975			1974			
	Kuskokwim Area	Yukon Area	Totals	Kuskokwim Area	Yukon Area[3/]	Norton Sound Area	Totals
Pounds of raw product							
King	24,399	2,467	26,866	34,581	468	249	35,298
Chum	57,711	71,328	129,039	98,602	46,901	1,627	147,130
Total:	82,110	73,795	155,905	133,183	47,369	1,876	182,428
Number of fishermen	1,200[1/]	225	1,425	1,438	186	-	1,624[2/]
Value to Fishermen	$123,548	$84,864	$208,412	$180,000	$35,533	$1,407	$216,940
Average value/fishermen	$103	$377	$146	-$125	$191	-	$133[2/]
No. of fish estimated from roe poundages							
King	31,905	1,494	33,399	20,342	283	150	20,775
Chum	184,246	143,676	327,922	313,024	93,802	5,165	411,991
Total:	216,151	145,170	361,321	333,366	94,085	5,315	432,766

1/ Preliminary estimate

2/ Does not include an undetermined, few number of fishermen from the Norton Sound area.

3/ Minimum poundages as sale of roe from subsistence caught salmon by licensed commercial fishermen not included.

Table 2 Subsistence salmon roe sales data, Kuskokwim area, 1975.

Subdistrict	Pounds of Roe			Value to Fishermen	Estimated Nos. of Salmon			
	King	Chum	Coho		King	Chum	Coho	Total
1	19,811	40,839	255	$ 91,357.50	26,531	137,540	850	164,921
2	2,304	16,534		28,257.00	3,091	45,740		48,831
4	2,284	236		3,780.00	2,283	674		2,957
5								
Hooper Bay		102		153.00		292		292
Total	24,399	57,711	255	$123,547.50	31,905	184,246	850	217,001

Table 3 Subsistence salmon roe sales data, Yukon area, 1975

Subdistrict	Pounds of Roe			No. of	Value to	Estimated Nos. of Salmon		
	King	Chum	Total	Fishermen	Fishermen	King	Chum	Total
1								
2	61	786	847	26	$974	37 1/	1,572 2/	1,609
3	551	4,908	5,459	18	$6,278	334	9,816	10,150
4	45	32,478	32,523	108	$37,401	27	64,956	64,983
5	1,300	14,787	16,087	33	$18,500	787	29,574	30,361
6	510	18,369	18,879	40	$21,711	309	37,758	38,067
TOTAL	2,467	71,328	73,795	225	$84,864	1,494	143,676	145,170

1/ Based on 1:1 male/female sex ratio in subdistricts 1,2 and 3 and 5:1 sex ratio in subdistricts 4,5 and 6: average roe weight of 3.3 pounds.

2/ Based on 1:1 male/female sex ratio average roe weight of .8 pounds.